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OCTOBER 1941

ELECTRICITY on the FARM

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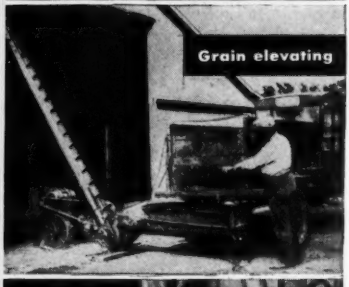
THE NATIONAL MAGAZINE OF RURAL ELECTRIFICATION

Here's Help

THAT WON'T LEAVE THE FARM



Let G-E Electric Motors Be Your Hired Hands

AS YOU'VE probably found out in these days of national emergency, you're being called on to produce *more* with *less* help. The armed forces and industry are claiming men by the thousands, but the farmer's job is bigger than ever.

One of the ablest substitutes you'll find for this missing manpower is electrical equipment. The electric motor, in particular, can handle many jobs about the farm that were formerly done by hand (a 1-hp motor can do the mechanical work of eight men). Just a few of the applications are shown here.

G.E. manufactures long-lived, thoroughly reliable motors of all types and sizes to meet your every need, including a portable variety which can be moved readily from place to place to handle various jobs. Your electrical dealer can probably help you select the right type for any given application; or write Rural Electrification Section, General Electric, Schenectady, N. Y.

SUBSTITUTE "WIRED" HELP FOR HIRED HELP!

GENERAL ELECTRIC

Editor's Chat

The Cover

"Laying for Defense." (Symbol permission OPM)

This is just another reminder that the Government is asking for increased quantities of certain products. Eggs are near the top of the list. Dairy products, pork and vegetables, particularly tomatoes, follow. There are two ways to increase production. One is to increase the number of hens, the number of cows and sows, and the acreage planted. The other is to make each hen lay more eggs, and each cow produce more milk, to save *all* the pigs farrowed, and to make each acre produce more. It would be poppycock to say that electricity is the one thing that can do all this; but it is good sense to ask one's self what electricity can do to help.

Anything that saves labor will help. Electricity can pump water, grind feed while you are doing something else; milk cows; brood chicks; help keep tools sharp and equipment in repair; and save labor in the home in cooking, preparing meals, washing, ironing, etc.

Lights, ultra-violet and warmed water will stimulate winter egg production; running water in drinking cups may increase milk production ten percent; pig brooders will save pigs and give them a good start; irrigation can help produce more and better tomatoes.

There are other ways, too. Each person must think it through for himself—the cost, the higher prices now prevailing, the real satisfaction which electric helpers can add to living.

Earth Unperturbed

We have troubles—war, politics, labor, priorities, increasing prices, lost jobs, changing demands.

Ants have troubles—stepped on, rained on, ant eaters, ant poisons, me with an oil can.

Men work. They build homes, roads and tunnels and gather food. So do ants. Ants make a mess of a lawn and pester us by getting into our homes and foods. We make messes and pester. Look at our eroded fields or ask the farm-machinery or ship builder who has suffered a disturber-promoted strike.

As far as I'm concerned, the lawn and fields would be better without the ants. Us?

War is terrible. It is painful to think of the loss of lives; to have our routine disturbed; our incomes taxed. But the blueberries still grow wild on Mt. Katahdin. That silver birch adds a ring each year. Nature heals the scars that man makes and abandons. The streams, the woods, the mountains, the fields are still beautiful, despite man's capers.

We must worry through man's troubles, but we can take strengh and joy from Earth—unperturbed.

Best Fisherman

Howard Kidder, 14 year old boy from Baltimore was enjoying his first trip deep in the Maine woods last month. He was enthusiastic about the two trout he had caught and his anticipation of more and bigger ones was keen. Then the axe slipped and he cut a deep gash in his foot. He did not whimper. He did not complain. He sat for two days, before being taken out to a doctor, with his foot propped up while other members of the party caught fish and told of meeting deer, moose, and bear on the trail. Gosh, how he wanted to be out seeing and fishing. A good fisherman needs patience and cheerfulness. Howard with his two fish was the best fisherman of us all.

A Symbol

BUSINESS WEEK recently published a picture of a farmer with an electric welder repairing a disc, with the comment that a weld replacing a bolt was a symbol of the times.

With priorities restricting the production of farm machinery and equipment, and with skilled labor ever more in demand, farmers will be taking more and more to the repair of their own equipment, improvising for those things they are unable to buy, and making every effort to reduce labor with machinery. In spite of present high civilian priorities for materials for farm machinery—military defense comes first. Even now there is not enough to go around. The best time to get ready is past. Now is better than next Spring.

George Kable

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Cook Big Meals Easier

with a

Hotpoint

ELECTRIC RANGE

Automatic Control of Measured Heat improves flavor, reduces meat shrinkage and preserves nourishing vitamins and minerals in food.

Adopt the modern electric way of cooking and turn out big meals without hovering over the stove. Simply put your food in the Hotpoint Oven and let Hotpoint's Automatic Control assume responsibility for the finished meal while you go about other duties.

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Learn the many ways a modern Hotpoint Electric Range saves time, money and food. Go to your electric company and see the beautiful new Hotpoint Ranges. Edison General Electric Appliance Co., Inc., 5610 West Taylor Street, Chicago, Illinois.

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CLOTHES DRYER • AUTOMATIC DISHWASHERS • ELECTRASINK

Some Light on Lighting

By MARY TAYLOR

Tips from Department of Agriculture Experts on Getting the Most for Your Money

SEEING is a three-way operation. It takes an eye, an object, and light. When the light illuminates the object, that's good; when the light shines in the eye, that's bad. Light in the eye is glare; light on the object you're looking at is illumination.

Science is okay, but no one has improved on daylight yet. In the house, to get the most daylight has to offer, use light shades. Don't use heavy drapes or curtains. Where draperies are hung, arrange them so they cover the casing and not the window. Hang your curtains so they can be pulled back easily to let the light in. Place tables, desks, and work benches near windows where they can be lighted by the sun.

Good lighting requires freedom from glare, the elimination of shadows, and the avoidance of sharp contrast between lighted objects and their background. Glare is misplaced brightness. It can usually be minimized by shading the light bulb with a material that softens the light, and by placing the light well above the level of the eyes. Milk glass or plastic bowls are anti-glare; so are shades made of parchment paper or light-weight, light-colored silks.

Reflected light may cause glare, too. Mirrors, pictures, table tops, glossy paper, shiny objects may throw dazzling light into the eyes. Sometimes you can just remove the offending object; sometimes it means covering a glass topped table, or a too shiny table top or desk.

The darker the paint on your walls and ceilings the more light you need for seeing. Lightness of ceilings particularly is crucial where modern upward shining indirect lighting is used. Paint finishes on walls and ceilings should be dull surfaces. Dullness diffuses an easy, comfortable light while glossy finishes cause glare.

Sharp contrasts in lighting come from a bright light that shines on an object in an otherwise dark room. The sharpness can be smoothed down by using general illumination in a room as well as a brighter light which shines on your book or your sewing or the children's lessons.

Most lamps give both direct and indirect light, the direct light giving light right on what you are doing, the indirect light furnishing general illumination to cut down shadows and to round off sharp contrasts.

Direct lighting fixtures send most of the light rays directly to the illuminated area. They give the brightest illumination, but with two drawbacks, glare and sharp contrasts between the lighted and unlighted areas.

Indirect lighting fixtures shoot their light rays against the room surfaces to be reflected back in a soft diffused light. They use the ceiling as a key part of the lighting system and for this reason especial care should be taken to finish ceilings in rooms lighted indirectly with a dull light colored surface. Indirect lighting is excellent for general room illumination, but usually not adequate by itself for close work.

Semi-direct lighting fixtures send most of their light rays straight to the illumined area at the same time they shoot other rays off to be reflected back to provide general illumination.

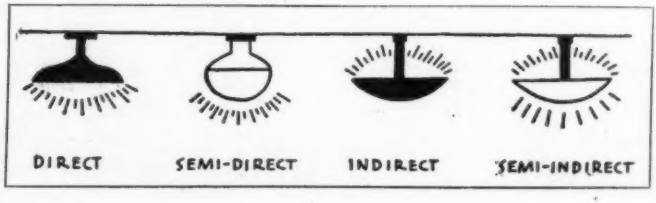
Semi-indirect lighting fixtures send most of their light rays up to the ceiling to be reflected back as indirect lighting at the same time they give direct illumination to the area directly under the light. Ordinarily ceiling fixtures of this type do not afford enough light for close seeing unless they are hung very low. Most modern portable lamps, however, are of the semi-indirect type and are designed for close-seeing tasks.

Lamps should be high enough to let the light spread and thus make it unnecessary to work directly under them. This also permits a lamp to be used by more than one person at a time. Shades should be wide at the base with a slight taper toward the top. They should extend down far enough to prevent the light from shining directly into the eyes. They should be light on the inside so they reflect light, and they should not have cracks in them (intentional or unintentional) which permit light to

shine through them. In no case should the shade be so thin that you can see the light bulb or bowl through it.

Some lamps bear the certification tag of the Illuminating Engineering Society (I. E. S.). The Illuminating Engineering Society is a professional organization of engineers who specialize in lighting. The I. E. S. tag on a lamp means that the lamp gives light of a quality and quantity which comes up to standards worked out by illuminating engineers and which bear their approval. The tag is also an assurance that certain safety requirements have been met.

Floor lamps for study and reading. The diffusing bowl and shade give general illumination indirectly; at the same time direct lighting is afforded for fairly close work without eye strain. Strategic placement of this lamp gives light for several persons to read and work by. For use with a 100-watt bulb, this lamp comes with an 8-inch bowl; 9¾-inch bowl takes a 150-watt bulb, or a 50-100-150-watt 3-way bulb. A 10-



inch bowl is used for a 100-200-300-watt 3-way bulb. Lighting experts suggest that this lamp be placed beside and slightly to the rear of lounge chairs or davenports; directly behind a davenport; or to the left or right of desks or tables used for study; and at the piano.

Bridge lamps get the call when the larger floor lamp won't do for some reason or other. This lamp gives semi-indirect lighting for general room illumination and direct light for specific tasks. It should be placed beside chairs, and near small writing desks and tables. It has a shade and diffusing bowl, an 8-inch bowl for use with a 100-watt bulb; a 9⅜-inch bowl for use with a 150-watt bulb or a 50-100-150-watt 3-way bulb.

Desk lamps that throw a direct undiffused light directly onto the book you're reading or the sheet of paper you're writing on are not recommended. The reflection of the light causes glare, and the bright patch of illumination such lamps give in the midst of an otherwise dark room is likely to cause eye strain.

Table lamps for study and reading give semi-indirect light for writing, studying, drawing, or sewing; come equipped with a shade and a diffusing bowl, in an 8-inch bowl for use with a 100-watt bulb, a 9⅜-inch bowl for use with a 150-watter, or a 50-100-150-watt 3-way bulb. They should be placed on the left-hand side of the desk or table for use by the right-handed and on the right-hand side of the desk or table for use by the left-handed; may also be placed in the center of a large table for use by several people at the table, or on a small table with chairs clustered around it; they should stand high enough to give a broad spread of light, but not so high that the unshaded light shines in the eyes.

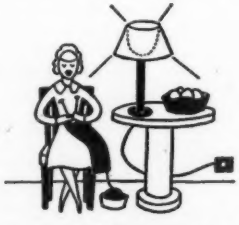
End table lamps come with a shade and an 8-inch diffusing bowl which takes a 100-watt bulb. They are decorative, they give general lighting, and they give enough illumination to enable a person sitting beside them to read or study. The end table lamp should always be placed directly to the side of the chair or sofa. The table on which the lamp stands should be about 26 inches high. The lamp shade should be broad enough at the bottom to light up the work being done by the person in the chair.

This pin-up bracket lamp gives a semi-indirect lighting for reading in bed, to sew by, or for any other activity requiring intent seeing. The lamp is hung on small nails driven into the wall and may be put up over the bed, above the sewing machine, or over the work table in the kitchen. It should be hung high enough to light up the room generally but low enough to give a direct light on what you're reading or doing. It may be obtained with a diffusing bowl diameter of 6 inches for use with a 75-watt bulb, or with an 8-inch bowl for use with a 100-watter.

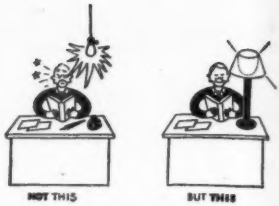
Bulbs

A handy suggestion lighting experts offer to householders is the *night light* which uses a 7-watt bulb. It may be plugged into an electric light outlet near the floor in bedrooms or in halls. You get a light that way that illuminates the floor late at night without waking up the whole house. It cuts down on cracked shins.

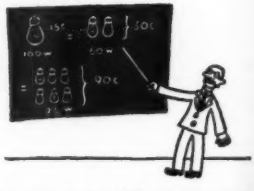
Be sure, when you buy bulbs, that you get ones that have been made for the voltage of the electric power system in your community. The voltage of an electric light bulb is always marked on the end of the globe along with the wattage.



When the Federal Government buys electric light bulbs it requires that they measure up to Federal Specifications. The bulbs are tested by the National Bureau of Standards and are accepted or rejected depending on whether or not they pass the tests. While some cartons in which bulbs are sold to consumers bear the legend that they conform to Federal Specifications, the NBS is not in a position to check on the accuracy of such claims because it only tests bulbs purchased by the Federal Government.



Higher wattage electric light bulbs may be better buys than low wattage bulbs. One 100-watt bulb gives as much light as 2 of 60 watts or 6 of 25 watts. The original cost of the 100-watter is approximately 15 cents while the 2 60-watters will cost about 26 cents and the 6 25-watters will cost about 60 cents. That's one saving.



To operate the 100-watter for 1,000 hours in a community where electricity costs 4 cents a kilowatt hour would cost $4.00. The cost of operating the 2 60-watters would be $5.00, while the cost of operating the 6 25-watters would be $6.00.

Inside frosted bulbs and clear glass bulbs give the same amount of light. Inside frosted bulbs are less apt to produce glare although frost on the inside of a bulb is no substitute for a shade or diffusing bowl. Clear glass or frosted bulbs may be used without shading where the light is snapped on for only a short time, say in a closet, in a corner of the basement, in the garage, or on the porch. Everywhere else these bulbs should be covered with a shade or a diffusing bowl or both.

Silvered bowl electric light bulbs have just begun to shine on the electric light horizon. These are bulbs which are silvered in the bowl end. This silvering, which does not tar-

(*More on page 22*)

Left: Mr. and Mrs. Gist and their home. **Right:** 30,000 gallon spring water storage tank made of concrete with pumping plant in pit at right. Farm buildings in background.

PRACTICE—Then Preach

An Account of WILL GIST, a County Agent Who First Practices What Seems Good for His Own Farm "Happy Hill," Then "Preaches" by Showing How It's Done and Why.

By **GEO. W. KABLE**

W. C. GIST is agricultural agent in Brooke county, West Virginia. His philosophy of being a good county agent is to first practice,—then preach. He has the well deserved reputation of being one of the best informed men on the use of electricity on the farm in the state of West Virginia.

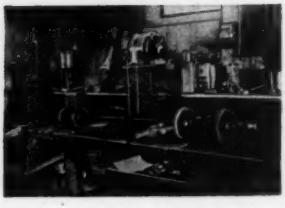
Will was born in Wellsburg, county seat of Brooke County. He was moved to his present farm when three months old. He went to country school from there, attended Bethany College, and the State University, and after a number of years as principal of a high school, in the State Department of Schools and as a Specialist in Rural Organization, he returned to the farm in 1916 and became county agent in 1925. He knows the county, the problems and the land.

"Happy Hill," the Gist farm, has long demonstrated the sensibleness of strip cropping. It goes in strong for legumes, has modern field machinery, operated mostly by a high speed rubber-shod tractor. But the electrical equipment interested me most. Mr. Gist is always looking for new developments which offer some promise of making money for him, saving labor, or improving products, production or the pleasure of farming. He winnows them out and makes them pay their way. Then, once a year there is Open House at "Happy Hill," and all the neighbors of the county are invited in to see for themselves and trade experiences.

The water system on the Gist farm was expensive. It cost nearly $1,000 complete with a 30,000 gallon concrete tank, 1 hp electric pressure system in a pit by the tank, 500 ft of power line from the buildings and 600 ft of 1 to 1½ in. pipe to the garden and buildings. The reason for the distance, the storage and the expense was that the wells near the house could not be depended on in dry weather. Mr. Gist says this reservoir with its ample supply of good spring water adds much more than $1,000 to the value of the farm.

Cash income is from the sale of milk, eggs and some alfalfa.

The dairy has just been remodeled. It has a new milking room with electric milker and a system of stalls of the milking parlor type for handling four cows at a time. This milking room adjoins the feeding barn and is connected on the other side by a pasageway to the milk room. At the end of his passageway a neat, inexpensive washroom with toilet, lavatory and shower has been partitioned off. For milk handling, there are two rooms. One contains the electric water heater, the washing and sterilizing equipment, separator and bottler. The wash tray was being tried out with bricks under the legs to find out what height made the work easiest. In the adjoining room was a



Above: Home-built dump trailer with electric welded tongue. **Center:** Inexpensive wash-room at the dairy with shower, lavatory and toilet. **Upper right:** Using the 18 ampere welder. Behind the welder on the post hangs the air-hose for inflating tires and the paint spray gun (handle just visible). **Lower right:** A corner of the shop.

four can wet milk cooler and a 6 x 9 refrigerated room for holding milk and other produce. It had a separate ¾ hp compressor unit. In the passageway to the feed barn was a No. 2 hammer mill driven by a 5 hp motor mounted on a wheel truck. It grinds home grown feed for the cows and poultry.

The arrangement for handling grass and corn for silage was particularly ingenious. The barn is a bank barn with feed room, milking parlor and milk rooms on the lower level. The silo also runs to the lower level just to the left of the driveway into the mow. The area around the silo adjacent to the drive has been covered over with a concrete slab with a trap door which is shown open in the illustration. Beneath this trap door, the ensilage cutter is set up with electric drive, and always ready for action. This space also forms the feed room where the hammer mill is located. In unloading ensilage crops, they are dumped off the back of the dump trailer down the chute to the cutter. When the cutting is finished, the trap door is closed, and the cutter is housed and stored until next time. Mr. Gist gives a tip that when using a dump truck for green alfalfa, the slope of the chute should be the same as the slope of the truck bed in dumping to avoid rolling and tangling the alfalfa.

All-night lights are used on the laying hens, and S-4 lamps which have been in use for two years have been found as effective in providing Vitamin D as cod-liver oil. The health of the birds and shell texture of eggs is good. Mr. Gist likes his commercial brooder better than the home-made one he built with a commercial fan unit. Both have given good results. A little hand burr mill, belt-driven by a 1/6 hp washing machine motor has been used in the poultry feed room for eleven years for cracking corn. It is still cracking because it is economical and conveniently located.

Has Ideas About Poultry Housing

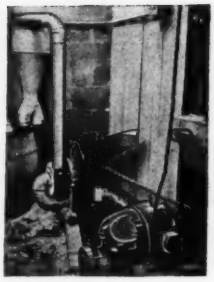
Mr. Gist has his own ideas about poultry housing. He has remodeled an old building into a double decked laying house and has found that one inch of cement mortar placed over the wood floors makes them dry, sanitary and easy to clean. He tacks clean corrugated board around the walls of brooder houses for warmth, replacing it each year with new. He thinks bank hen houses as well as bank barns have possibilities.

The shop has a large door so tractors and farm machines may be driven in. It has a radio for news and music while they work and a furnace for comfort during the winter months when most of the repair work is done. Above the bench is a 1 hp motor, V-belt connected to a line shaft which drives a paint sprayer compressor and two grinding and cleaning heads. The drill press has its own ¼ hp motor.

The paint sprayer is especially interesting. It is a small one, and after being used to paint most of the farm buildings, it was placed in the shop and connected to an overhead range boiler used as a pressure tank. A pipe runs from the tank to a post in the center of the shop where an air-hose supplies pressure for tractor, truck and car tires and a connection for the paint spray gun used for painting machinery, trucks, furniture, etc.

Another surprising piece of equipment is the 18 ampere electric welder. It is hardly intended for heavy work, but under the skillful control of Park Love, an excellent mechanic as well as farmer, it has done some almost unbelievable jobs. The plow moldboard shown in the illustration has been used three years since Mr. Love welded it. The welded tongue on the heavy homemade dump trail-

(*More on page 30*)



Left: Feed-grinding equipment with truck-mounted five hp portable motor. **Center:** Ensilage and feed chute door into feed room of bank barn. **Right:** This plow has been used three years since the broken tip was welded on the moldboard.

F.H.A. Demonstrations

The State of Pennsylvania puts on contests each fall and winter for FFA demonstration teams. The subject of the demonstration may be forestry, poultry, electrical equipment or any subject the group has been studying. Last fall thirty teams gave electrical demonstrations. The best team in each district, 28 in all, is sent to the State Farm Show in Harrisburg in January for the final competition. The team shown in the picture was the highest scoring electrical demonstration team at the 1941 Show. From left to right they are: Cecil Rhodes, Lee Walls, Richard Royer and Stanley McClenahan, all of Hollidaysburg High School. G. O. Bressler is their vocational agriculture teacher. When this picture was taken, these boys were demonstrating before a session of the Seventh Annual Rural Electrification Short Course at Pennsylvania State College last May. These teams give many demonstrations at fairs, grange meetings and schools. They know what they are talking about and are experts in making and using the equipment. This demonstration was of the use of different types of fractional horsepower motors.

Preventing Farm Fires

Farm Fire Prevention Week, October 5-11

THE farm fire is not a cheerful subject. An occasional reminder and some preparation in advance may help to prevent fires, and keep us more cheerful.

Fires on the farm can be prevented and controlled by simple, common sense methods. About 200 farm buildings in the United States and Canada burn every day—75,000 each year. And farm buildings without fire protection usually burn to the ground. About one-third of the national fire loss occurs on farms and costs farmers about $100,000,000 in addition to the lives of some 3,500 rural people.

The majority of farm fires are due to just seven causes—all largely preventable. In the approximate order of their importance, these are:

1. Defective chimneys and heating apparatus.
2. Combustible roofs.
3. Lightning.
4. Spontaneous ignition.
5. Misuse of electricity.
6. Matches and smoking.
7. Gasoline and kerosene.

How to Prevent Farm Fires

Rebuild all defective chimneys and see that all heating apparatus is properly installed. Keep chimneys, flues, stoves, etc., clean. Defects in chimneys and heating apparatus cause most of the fires in rural homes, but are easily prevented. The chimney should be built from the ground up, not depending for its support upon any wooden construction. A standard tile flue lining makes a better chimney. Frequent cleaning will offset some of the hazard of a chimney with walls too thin. Use short, well supported smoke pipes away from combustible materials with ventilated thimbles where they must pass through partitions or ceilings.

Use fire retardant roofings wherever possible. Roofs may be ignited by sparks from bonfires, etc., as well as from chimneys. Keep a ladder and hose ready to reach the roof quickly in case of fire.

The farm property loss from lightning averages around $10,000,000 a year. Experience shows that properly installed and well maintained lightning rods have an efficiency of nearly 100 per cent in preventing farm lightning damage. Proper protection requires effective low resistance grounding and air terminals in accordance with the National Code. Tracks for hay or manure carriers, metal stanchions and other interior metal bodies should be interconnected and well grounded to prevent flashes from one metal part to another. Livestock can be protected by grounding all wire fences. A wire run from the top of high trees in pastures, and grounded, may save trees and stock.

To guard from spontaneous combustion, thoroughly cure hay and other roughage and do not allow horse manure to accumulate in large piles in or against buildings. Frequent observations of stored hay should be made for several weeks or as long as there is any evidence of heating. Massachusetts State College says 150° is entering the danger zone. At 180°, call the fire chief. If hot spots are to be removed, the Fire Protection Association recommends first wetting thoroughly and having fire-fighting equipment ready.

Fires from matches and smoking can be reduced by keeping the farm premises clean and tidy and built of incombustible materials as far as possible. Allow no smoking in barns or other buildings where highly combustible materials are stored.

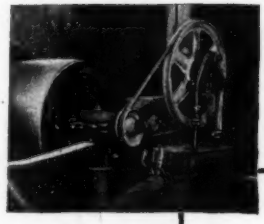
Make sure all electric wiring and devices are Underwriter's approved and properly installed. Electric lights reduce the fire hazard because they replace the more hazardous lamps. Electricity itself may be a serious hazard if wiring is not properly done or if successive additions are made so that circuits are overloaded. Improper fusing, and careless use of electric irons are hazards.

Store gasoline in underground tanks, using the gasoline from pumps. Or if it cannot be stored underground, use from original containers 75 feet or more from buildings. Do not use gasoline in the home for dry cleaning, or kerosene for starting fires.

An ample supply of running water with a good hose always available in the most hazardous locations is desirable protection. Large fires all start as small fires and small fires are usually easily extinguished. It is also well to provide chemical extinguishers—and keep them charged, and water pails with tanks of water. Wire the pump motor so that the electricity will not be cut off if buildings catch fire. Farm ponds or reservoirs with inexpensive motor driven centrifugal pumps and fire hose, or located in easy access of city fire department pumps, is good insurance. The same pumps may be used for garden irrigation.

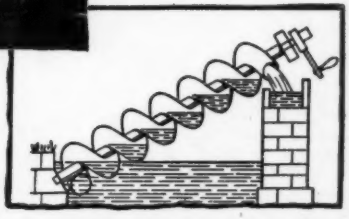
Note: Most of the information in this article is from the National Fire Protection Association, 60 Batterymarch St., Boston, Mass.

Two Interesting Pumps



The lower illustration is of an Archimedes screw. Archimedes, Greek mathematician and mechanic who is credited with the invention of the screw, first used the principle in a machine for raising water for irrigation. It consisted of a tube bent spirally around an axis. Some low lift pumps used for irrigation are still built on this principle.

The illustration above is of a rubber tube pump used at University of Tennessee for pumping molasses out of a barrel onto silage as it passed through the cutter. This is a home-made outfit. The tube is a good rubber milking machine tube. The rubber has to be good and strong or it will wear out quickly. The ends of the tube are clamped securely to suction and discharge pipe as shown. The remainder of the pump consists of a pulley with three equally spaced pins with sleeves over them which rotate freely and keep the tube stretched as the pulley



turns. The sleeves over the pins roll the air out of the tube and create suction. The same rolling action forces the liquid on through the tube after it is drawn in.

Boys, here is something easy to build and interesting to experiment with. For you old boys, too.

WESTINGHOUSE DAIRY PROVING FARM—KWHR CONSUMPTION BY MONTHS

Meter No.	Building-Equipment	FIRST YEAR 9/11-10/12 1938	11/11	12/12	1/11 1939	2/10	3/13	4/12	5/11	6/12	7/12	8/11	9/12	Total	Monthly Average	SECOND YEAR 9/12/39-9/12/40 Total	Monthly Average
1	House (total)	562	462	404	482	464	540	498	456	416	388	345	399	5,416	451.3	6,468	539.0
2	*Shallow well pump	1	...	1	1	...	1	...	...	1	1	1	1	9	.75	9	.75
3	†Deep well pump	37	34	24	30	36	39	35	31	22	27	26	33	374	31.16	583	48.58
4	‡Water Heater (80 gal.)	213	162	164	193	155	207	193	189	178	164	139	159	2,116	176.3	2,417	201.40
5	Range	126	106	77	97	110	127	111	127	123	118	106	112	1,340	111.66	1,820	151.66
6	Dishwasher	2	...	1	1	..	...	2	1	...	1	...	1	9	.75	....	.....
7	Refrigerator (9½ cu. ft.)	17	16	14	14	11	15	13	15	20	26	30	29	220	18.33	213	17.75
10	Old House (total)	35	26	...	...	222	112	7	5	...	20	34	58	519	43.24	81	6.75
11	Milk House (total)	432	460	503	556	548	619	774	497	428	420	415	489	6,141	511.73	5,402	450.16
12	Milk Cooler (8-can)	84	74	73	73	55	67	72	76	127	245	70	167	1,183	98.57	1,325	110.4
13	Sterilizer	88	84	104	126	94	111	106	46	18	6	14	52	849	70.75	664	55.32
14	‡Water Heater (80-gal.)	236	272	273	317	357	391	565	360	272	262	218	249	3,772	314.33	3,252	271.0
15	Ventilation Fan	...	..	...	2	11	12	7	2	2	2	7	6	51	4.25	29	2.41
18	Barn (total)	175	176	194	212	266	278	281	180	79	76	144	122	2,183	181.92	1,722	143.5
19	Milker (½ Hp)	49	50	53	51	51	62	55	37	39	38	40	44	569	47.41	629	52.4
20	2 Hp. Motor (feed grinder)	45	31	27	32	63	55	49	28	7	6	18	20	381	31.75	222	18.5
21	5 Hp. Motor	17	7	4	3	2	...	33	3	...	10	62	21	162	13.5	200	16.66
24	Ventilation Fan	...	...	...	9	33	44	70	65	5	4	7	6	243	20.25	195	16.25
22	Poultry House (total)	5	3	3	1	...	1	394	270	...	...	...	...	677	56.4	146	12.16
23	Shop (total)	4	5	2	6	2	...	4	7	5	4	2	4	45	3.75	618†	51.5
	Main Meter** (total farm)	1,876	1,138	1,218	1,170	1,510	1,560	1,845	1,432	982	900	955	1,098	15,684	,307.00	14,145	1,178.71

*Averages—Water: Shallow well pump—842 gal. per month for 24 months. †Deep well pump—14,860 gal. per month, 2-month average. #Household water heater—787 gallons per month for 24 months. ‡Dairy water heater—986 gallons per month for 24 months. **Main meter reading exceeds total of sub-meters, due to unmetered miscellaneous items.

WESTINGHOUSE POULTRY PROVING FARM—KWHR CONSUMPTION BY MONTHS

Item	Dec. 1938	Jan. 1939	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Total First Year	Monthly Average	Total 12/39-12/40 2nd Yr.	Monthly Average
Water Heater	379	291	356	372	408	462	414	348	370	352	352	366	4,476	372.5	4,650	387.5
Ironer	——Meter connected in May——					8	12	14	14	9	8	8	73	10.43	(2)	(2)
9 cu. ft. Refrigerator	...	...	28	28	27	35	47	47	49	35	34	28	358	35.8	408	34.
Range	151	116	142	161	143	165	175	158	164	162	175	179	1,891	157.5	2,101	175.08
*Shallow Well Pump	8	5	8	9	9	8	8	6	9	6	9	6	91	7.58	76	6.33
Portable 2 hp motor	...	32	32	44	32	21	(1)	(1)	(1)	(1)	23	27	211	30.14	318	26.5
†Barn Total	127	78	88	179	101	44	42	34	55	77	80	96	1,001	83.5	1,139	94.91
Old Poultry House Lights	53	36	46	121	57	10	10	10	30	36	44	54	507	42.25	675	56.25
New Poultry House Lights	47	37	38	22	0	13	13	14	36	32	40	48	340	28.33	405	33.75
Brooder House Brooders	77	...	...	316	218	20	...	...	...	...	...	...	631	.....	343	.....
#Main Meter	530	308	372	792	566	442	362	398	386	378	410	426	5,270	439.16	5,336	444.66
‡Main Meter plus W. Heater	909	599	728	1,164	974	804	776	746	756	730	772	792	9,750	812.46	9,986	832.16

*1,000 gallons pumped at average cost of 2.26 cents. †Includes lights in barn, 2 hp portable motor. A ¾ hp motor added Mar. 1939. #Includes all metered and non-metered uses except water heater. (1) Meter used on feed mixer for these months—¾ hp motor, 2 kwhr per month. Note: Average earned rate for year on uses not including water heater based on 2.54c per kwhr. ‡Water Heating, 9c per kwhr (off peak). (2) Ironer not metered second year. During 8 wks. test period 641 chicks were brooded using 450 kwhr or .7 kwhr per chick.

PROVING FARM Records

In the October, 1938, issue of ELECTRICITY ON THE FARM we showed pictures and gave an account of the opening of a Westinghouse Proving Farm near Rochester, N. Y. It was a dairy farm of 200 acres, owned by Nelson R. Peet and completely equipped electrically by the Westinghouse Company for the purpose of studying the economics and the technique of using electricity fully on such a farm.

Several months later the Charles Wendig poultry farm of 164 acres was equipped by the Westinghouse Company for a similar study of poultry farming. It was described in our January, 1939, issue.

These farms have now been operating for more than two years and we are pleased to present the records of power used, costs in comparison with the period before complete electrification, and the effect on operation.

On the dairy proving farm, where the kwhr consumption data was obtained, the family consisted of four adults. The year previous to complete electrification, the dairy farm electric bill was $84.20; ice $50.32; oil for cooking and lamps, $96.40; wages of one hired man, $480; one hired girl at half-time, $120. Total, $830.92.

Use of 15,684 kwhr during the following year cost $365.22. Estimated upkeep and interest on the investment was $193. Total savings by electrical methods was $272.70, or enough to replace the cost of all equipment within ten years.

During the second year, appliances and equipment were used by the farm family without supervision while the 14,145 kwhr consumed varied but little as compared with 15,684 for the first 12 months.

The family on the poultry proving farm consisted of four adults and two children, resulting in higher consumption of electricity for household purposes than on the dairy farm. On the other hand, equipment for poultry production required considerably less electricity than dairy equipment such as milk cooler, water heater, and milker.

A 2-horsepower motor for feed grinding, poultry house lighting and electric brooding were the chief uses of electricity outside the house. Due to the help of electricity, the poultry and egg production was doubled without additional manual help and work was easier.

*1,000 gallons pumped at average cost of 2.26 cents. †Includes lights in barn, 2 hp portable motor. A ¾ hp motor added Mar. 1939. ‡Includes all metered and non-metered uses except water heater. (1) Meter used on feed mixer for these months—¼ hp motor, 2 kwhr per month. Note: Average earned per hen not including water heater based on 2.34c per kwhr. (2) Irons not metered second year. During 8 wks. test period 641 chicks were brooded using 450 kwhr or .7 kwhr per chick.

Broiler and Fryer Production by Electricity

Ventilated Electric Brooders Solve Troublesome Problem

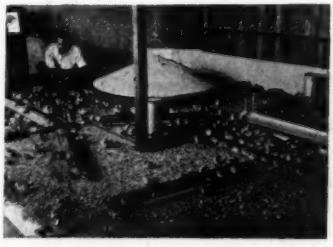
By B. A. MILLER

WHEN Mr. Bert Hagen of Campbell, California, decided to go into the chicken business, he weighed the merits of all types of fuel for the important job of brooding and on the basis of the following factors:—

1—Labor saving.
2—Safety.
3—Good ventilation.
4—Even temperature.
5—Economy of installation.
6—Economy of up-keep
7—Economy of results (Low mortality).

After four and one-half months of operation, Mr. Hagen is fully convinced that electric brooding is the best.

This plant consists of five brooding rooms, each equipped with the latest type electric brooder with ventilating fan unit, 660 watt heating unit—500 chick capacity. The finishing rooms are not heated. No roosts are supplied. The birds roost on the floor.



Above: One-week old chicks in brooder room. Below: Nine-week old chicks in finishing room.

General view of Hagen Poultry Farm, Campbell, Cal.

Operation began December 6, 1940 with one brooder room and one finishing room, and to April 17th, last meter reading date, the following power costs were noted.

			Kw-hrs	
November	16	Reading..	120	$4.70
December	19	Reading..	380	8.32
January	16	Reading..	786	11.97
February	18	Reading..	1,052	14.37
March	19	Reading..	1,414	17.63
April	17	Reading..	1,590	19.21

From the above statement it is estimated that the average cost of brooding has been $11.75 per month.

To date these brooders have turned out approximately 8,000 chicks at a cost of $47.00, or a cost of $.0058 (just over ½c) per chick.

The average mortality on these chicks has been 2½%, which in Mr. Hagen's words, "Is far lower than I ever dreamed could be secured." All of these results were secured in spite of the wettest winter since the season of 1889-1890.

In Napoleon's time it took one man in industry to maintain two soldiers in the field. Today it takes 18 men to keep one soldier going.

J. C. Scott of Puget Sound Power & Light Co. says that George Petrie, an old Montana sheep rancher, once kept a sheep for three years before shearing it. At the end of that time 68 pounds of wool were shorn from this one sheep. A world's record?

Holiday

The day the Millers brought the wires in,
They had a big invite and neighbors came
From miles around to celebrate the same—
And Horace Withers brought his violin.

The pies we ate! And then a little later,
A trip to see the grinder in the shed,
And then by Mother Miller being led
Back to the kitchen and refrigerator!

Lord, that day was fine! A holiday,
And twice as sweet when all was said and done—
The Millers, proud as anything, so gay,
Turning the switches on and off for fun!
The folks so happy, full of jokes and charm—
The day the Millers wired up their farm!

—HAROLD FALLER

Motor-Driven Seed Treater

The illustration is of a seed treating machine in a grain elevator in Cottonwood County, Minnesota. It was obtained by Extension Service, USDA. The treating drum may be a corrugated can of this type or a cleaned out oil drum. The shaft, which may be solid or of ¾ or 1 inch pipe, is placed diagonally through the drum and welded or bolted to the drum. The speed should be about 30 rpm. A 2 x 8 placed across the drum against the shaft will facilitate mixing. The mixing is done by a sliding and rolling action and is very thorough. The drum is filled when in the position shown. When turned half over it will dump into the chute shown at the right.

When Electricity First Went to Sea

By **WALDO WRIGHT**

SIXTY-ONE years ago the lumbering *Columbia*, her waterline awash, waddled out of New York harbor. She looked much like many another departing freighter of that day with her lashed spars, her polyglot crew and her square-jawed skipper.

But once out of sight of Ambrose light, as twilight deepened into dusk off Asbury Park, this prosaic vessel took on new magic, became historic as it faced its first night on the Atlantic.

On board was the advising engineer of a western navigation company, responsible for the safe delivery around Cape Horn of the precious cargo of locomotives and railroad cars. As dusk fell, he stood in the engine room with the ship's engineer, beside four shoulder-high contraptions that were to revolutionize all navigation on the high seas.

As the Corliss engines began to whip their crossheads back and forth, as the taut leather belts started with squeaking complaint to turn the wooden pulleys of Edison's hand-built dynamos, first a faint glow, then a yellow beam came from the lamps hanging in the salon and on the lower decks of the good ship *Columbia*.

Grimy coal stokers standing by in the engine room had been full of doubts. How could this odd contraption of iron and red-painted wire bring forth light? As the bulbs gleamed they cheered, and the passengers hurried into the companionways to see this phenomenon.

Just in case the carefully installed equipment had failed to function, the owners of the *Columbia* had somewhat shamefacedly installed oil lamps throughout the ship. But the four dynamos made these familiar old-style lights obsolete with the first purring of the 100 volt armatures.

Three dynamos were enough to light the *Columbia*. Each dynamo illuminated sixty of the small 16 candlepower lamps that had been carefully built and tested at Menlo Park under the personal supervision of that wizard of electricity, Thomas Edison.

These fragile lamps were screwed into wooden sockets to avoid possible shock and to afford all possible protection to the frail filaments. The wires carrying the current were wrapped in cotton impregnated with paraffine, just as doorbell wire, purchased today at a ten cent store, is still wrapped. However, where the wires passed over metal beams or ran along bulkhead plates, Mr. Edison had insisted that they be carefully shrouded against short circuits by rubber tubing, again using the identical principle of rubber insulation which underwriters demand today.

Lest passengers, unfamiliar with electric switches, might suffer shock from trying to operate the new fangled lights in their staterooms, the controlling switch panels were outside the staterooms. Hard-faced stewards, drilled by the ship's engineer, gave or withheld light under an odd system of ship's curfew.

What happened to the waddling *Columbia* and what became of these first historic dynamos? What remains of these bits of iron and wood which proved so conclusively that electricity can be carried to sea and harnessed not only to light but to perform many other functions on the watery highways?

Columbia Sturdily Built

The good ship Columbia continued in service on the West Coast for thirty years because of the soundness of her construction in the Chester shipyards where John Roach's eagle eye supervised the laying of her keel, the bending of her beams, the pinning down of every solid plank on her deck.

The four Edison dynamos lighted the Columbia faithfully for fifteen years because of the planning and thoroughness of the workmen in Menlo Park. In 1895 more compact dynamos with less internal power loss had been devised. The first dynamos were taken from the engine-room floor and sent back to Menlo Park. A few years ago, on the 50th anniversary of electric lighting, Henry Ford transported one of them to the Edison Institute Museum at Dearborn.

And there, standing on the museum floor, still straight and proud, its wiring still glossy red, this historic dynamo remains as an emblem of the first device to conquer electrically the darkness of the deep.

Major-General Gunn an Electricity Enthusiast

The following letter from Major-General Gunn, President of the Canadian Legion War Services, was written last June.—EDITOR.

"My attention was called to your publication through a story in the Ontario Milk Producer. I received the May and June copies and found them most interesting and instructive.

"The following uses of electricity on our farm in Ontario may be of interest to your readers. Our equipment is all so valuable that it is hard to say what we like best.

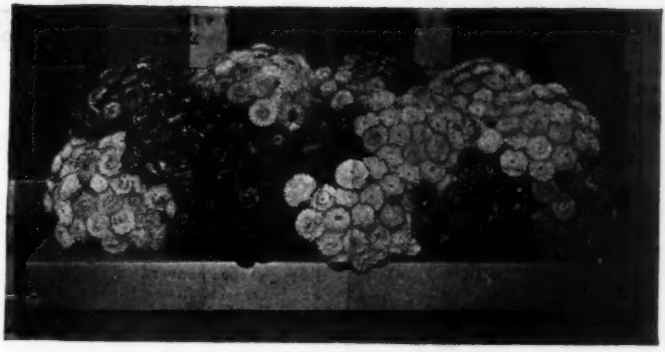
1. A one and a half horsepower motor pumps enough water from a stream to care for the needs of twelve men, 115 head of pure Holstein cattle and 200 swine.
2. In winter—the pig brooder makes winter litters as easy to control as summer litters.
3. Grinding and crushing grain cuts labor in half.
4. Our electric milking machine now in use for fifteen years, solves our milking problems, particularly when men are scarce, owing to the war.
5. It cools our milk to forty degrees in ten minutes. Our bacterial test last week was only 600 per cc.
6. The electric cattle clipper and the tool grinder get a lot of praise.
7. Now the battle of flies is on and electricity is helping to win it.
8. Best of all, the men say, is the nightly bath after a hard, sticky day.
9. Last but not least, are the women folk—washing, ironing, the refrigerator, radio, curling tongs, to say nothing of the sewing machine.

"The writer gave up his business connections on the outbreak of war to devote his time on a voluntary basis to the Canadian Legion War Services, Inc.

"In one year we have accomplished quite a bit as evidenced by the enclosed booklet, also a little story about our good friend Wendell Willkie who came to Canada last March and did a magnificent job."

New Remedy for Screwworms

A new USDA remedy for treatment and prevention of screwworm infestation of livestock has been announced. It is formula 62 consisting of diphenylamine, benzol, turkey red oil and lamp black. One gallon costing about $1.50 is enough to treat 200 or more wounds. Directions available from USDA in Circular E-540.



Everlasting Flowers Dehydrated Electrically

By H. N. CARROLL

"EVERLASTING flowers" are dehydrated straw flowers (helichrysum). They are dried in their natural colors, retain their beauty for several years, and are used in floral pieces or for decorative purposes.

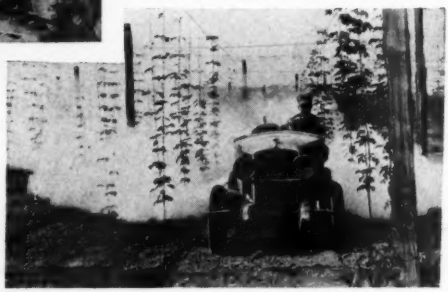
The industry was founded in San Mateo in 1925 and now includes six concerns at Montara and one at Pescadero, with a total of 70 acres of straw flowers. A. R. Wagner, pioneer of the business, has the largest establishment—the South Canyon Nursery at Montara. This year he raised 15 acres of "straws" and dehydrated five million blossoms.

Wagner dries straw flowers with electric heat and so does a neighboring firm, the Coast Wholesale Florists, Inc. Both state that the electrical method is economical, convenient, dependable, and sure of perfect results. Wagner has five dehydration chambers, with a capacity of 50,000 blossoms each, and uses long strip-heaters on the floor of each. The illustration shows, under the flower racks, the end section of the frame on which the electrical strip heater units are mounted. They are of 500 watt capacity and spaced about 12 inches apart on the frame. Half of the strip heater units are direct connected, the other half (each alternate unit) are turned on and off by a thermostatic control.

The Coast Company has three 30-000-blossom chambers and blows heat into them from units in the room. The processes in producing "everlasting flowers" consists in first cutting the blossoms without stems. Originally the stems were left on, but they broke easily when dried. So Mr. Wagner conceived the idea of mounting the flowers on fine wire. He uses five tons of wire per season. His plan has been adopted by all the others. Girls put the freshly cut blossoms on the wire stems at the rate of about 6,000 per day per girl, and assemble them in bunches of 25. These bunches are hung on racks that fit into the dehydration chambers. They stay in the chambers from 36 to 38 hours, with temperatures ranging from 130 to 200 degrees. They are then ready for packing.

Deadly Dust for Downy Mildew

◀Dust for use against downy mildew in Oregon hopyards is electrically mixed at the rate of three tons a day and at a cost of 7¢ a ton. Dusting, not racing, is the purpose of this speedy looking car traveling through the hopyard at eight miles an hour. Electrically mixed dust is applied at the rate of 25 pounds ▼per acre to combat downy mildew.



By **BEN MAXWELL**

Dust is replacing wet sprays in many Oregon hopyards as a combative measure against downy mildew, a fungus attack on growing hop foliage. For mixing dust, growers have abandoned gasoline engines wherever possible and installed electrically operated mixers because electric power is economical and reliable.

At the Williams & Thacker hopyard in the Willamette valley near Salem dust consisting of lime and copper sulphate is electrically mixed at the rate of three tons in eight hours. During this interval in which 300 pounds of dust is mixed in 20 minutes of operation, power is supplied by a 1½ hp. electric motor. Cost of mixing for 6½ hours of motor operation is approximately 20 cents or 7 cents for every ton of dust mixed.

Electric rather than gasoline power for dust mixers is favored because it is more economical. The electric motor is stopped during intervals when the mixer is being filled with dust and not in operation. It is more efficient and reliable, too, because motors used are tightly built and impervious to corrosive and abrasive dust on moving parts.

For downy mildew in hopyards dust consisting of 50 pounds of copper sulphate and 250 pounds of hydrated lime is applied at the rate of 25 pounds to the acre. Effective dust formulae, also electrically mixed, are used by bean and strawberry growers.

Small Hammer Mill Proves Its Worth

By **P. D. RODGERS**

Some people object to the small, electrically operated feed grinders on the basis that they are "trifling." There is one mill driven by a 5 hp motor which has replaced a tractor-driven mill because, "It took too much time," to quote the farmer. Such a statement may sound strange to some, but let's examine the facts.

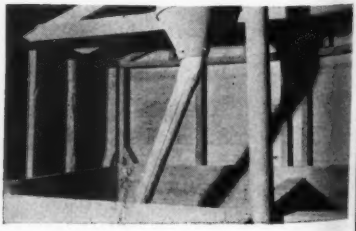
Mr. Hale, Salem, Virginia, says he used to have to go get the tractor, fill the tank, line up the belt then stand in constant attendance while he fed the grinder. This took time and disrupted the other farming operations. If he ground a lot of feed at one time, to avoid interruptions as much as possible, then he had the extra labor of storing the ground feed and carrying it from storage later.

With his new set-up he starts the mill by pushing a button. The motor is always ready to run and there

(*More on page 24*)

Above: A 5-hp mill grinds feed for this herd. **Left:** Feed for the 26 cows for 10 days costs 1½ hours part-time labor and 15¢ for electricity. The fan intake is connected to spout at right for mixing the ground feed.

Below: These three overhead bins and the swinging spout on the dust collector provide mixing and storage facilities.



Electrical Housekeeping

Edited by
GAIL MEREDITH

A Hallowe'en Supper

If you are planning a party for Hallowe'en, here is a simple supper that looks nice on the table and tastes good in the eating. The mugs on the tray at the left are full of steaming hot consomme. If you have your own canned soup stocks, you can dilute it to the proper strength for drinking, and if you buy the condensed consomme, you will add water in equal parts when you heat it. The sandwich rounds cut from slices of light and dark breads have solemn little faces made by sticking bits of bread onto the circles with a dab of sandwich filling. Little chunks of the dark bread on the white sandwich and white bread on the dark, and done in no time at all, practically.

The doughnuts and the coffee are traditional Hallow'en fare, but the jellied tomato cheese salad is a modern invention. This one was made in an eight-inch ring mold and turned out on the big platter to be garnished with lettuce and endive. Its ingredients are

2 tablespoons gelatin
¾ cup water
1 can condensed tomato soup
3 packages cream cheese
1 cup salad dressing or mayonnaise
1 tablespoon lemon juice

Sprinkle the gelatine on the water. Let it stand for about five minutes. Heat the soup and add the gelatine, stirring it until it dissolves. Take the soup off the range and add the cream cheese. Beat it with a rotary beater until it is smooth. Let the mixture cool before you fold in the mayonnaise and lemon juice.

Talking Coffee

Dan Stedman boarded at the McElroy's while he was in North Orcutt running survey lines for the new highway. He and Nora are second cousins on his mother's side, I believe, but it was not their kinship that drew Dan out to the end of High Street for his meals.

It was Nora's coffee. He still says it is the best he ever drank.

"If my wife could only brew a draught like that," he'd mourn, passing back his cup the third time. "If it's a secret, why don't you patent it, and sell it, so it will gradually get around to all these girls we're marrying. My wife is a good cook on plain things, and she can stir up a right tasty party on demand, but she never made coffee like this."

"Gwan with your blarney," Nora would laugh. "Good coffee's no secret. If you want to make a good cup of coffee, you just *have—to—put—some—in!*"

Dan used to tell his wife this story, and Dan's wife told it to me, but it never did convince me that this was really the secret of making coffee that would make Dan remember it for years. So one day last summer when I was driving through North Orcutt, I stopped at the McElroy's and, using Dan's name as an introduction, I asked Nora point blank how she made her coffee.

She threw back her head and laughed a fine ringing laugh.

"It's Danny himself that's still talking, is it? Sure he was a great one for his cup of coffee."

But she was quite willing to go over her method with me step by step, and I found what I'd more than half suspected when Dan used to talk about her coffee so much that if she had started at the beginning with her telling as she certainly does in the making, she would have pointed out that a good cup of coffee begins at the store.

For she told me that she selects a brand that suits the folks she cooks for, and she gets the grind—or has the coffee ground—to fit the coffee maker she is using. She buys just about enough for a week at a time, so it never has a chance to go stale on her pantry shelf. She knows that she must use it freshly ground or fresh from a new package to get the finest, delicate flavor of the coffee.

The care of her coffee maker is her next precaution. She came right out and said so bluntly.

"If you want good coffee, you have to keep the coffee pot clean."

Really clean, she means. She washes hers with soap, brushing out the tube that reaches from one sec-

Like Having

Here's a solution to one farm problem. Never again need you be tied to your kitchen every minute you spend baking or cooking meals. A Westinghouse Roaster·Oven can give you hours of extra time each week.

Need to be outdoors this afternoon? There are many meals that will cook perfectly, without watching, during the time you expect to be out of the home. The heat is evenly regulated, electrically.

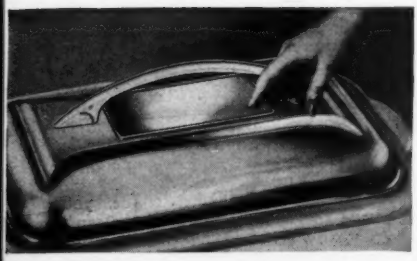
Need to be away most of the day? With an electric Timer Clock, you can get the meal ready, put it in the Roaster·Oven, set the clock for "On" and "Off", and the cooking job will be done with you miles away.

Ask your Westinghouse dealer to show you this handsome Roaster·Oven. It is economical in the use of current. The original cost is low for such a long-life, dependable kitchen unit.

PLUGS INTO ANY A-C ELECTRICAL OUTLET

A Westinghouse Roaster·Oven requires no installation expense or special wiring. Connects to any A-C wall outlet.

Why You'll Want Your Roaster·Oven to be a Westinghouse



With a Westinghouse Roaster·Oven you can see the food cooking without lifting the lid; and only Westinghouse gives you the "Look-In" Lid.

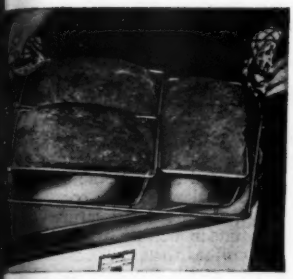
The Time-Temp Shelf (right) is a quick cooking guide. Just pull out the handy shelf in the base of the Roaster·Oven and see at a glance the correct temperature and cooking time for all commonly prepared foods.

Dial the exact temperature you want by turning the True-Temp heat control. When that temperature is reached, the electricity automatically turns off until more heat is needed. Saves electricity. Frees you from watching.

The cover is self-basting, with all-purpose vents in it. The Hall Ovenware dishes supplied can be used on the table with casserole recipes. The Roaster·Oven is attractively designed; you'll be proud to own it.

EXTRA HIRED GIRL

You'll spend LESS TIME IN THE KITCHEN with a Westinghouse ROASTER·OVEN



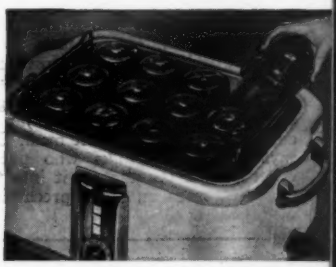
BAKING. Holds three loaves of bread, two pies, or two cake layers. Automatic control of just the right temperature means perfect results.

COOKING MEALS. Meat, potatoes and vegetables—a complete meal for six or eight people—can be cooked in your Roaster-Oven at one time.

ROASTING. Preserves the rich flavor of all kinds of meats. Reduces waste because self-basting lid prevents "drying out." Holds 15-pound turkey.

LARGE QUANTITIES of baked beans, spaghetti and similar dishes can be prepared at one time for picnics, church suppers and other community gatherings.

BROILING. No longer need farm families do without delicious broiled steaks, chicken, vegetables and many other foods. Use the Broiler-Grid attachment, available at a small extra charge.



CANNING. The convenient, easy way to can fruits, vegetables, meats—anything suitable for oven canning. Holds either pint or quart jars.

SEND FOR FREE BOOKLET

Attractive, fully illustrated 48-page booklet, gives complete directions for using a Westinghouse Roaster-Oven. Gives dozens and dozens of recipes for mouth-watering complete meal combinations, delicious pastries, vegetable dishes and many others. Write Westinghouse Electric & Mfg. Co., Dept. 1132, Mansfield, Ohio for your FREE copy. Ask for "Yours for Easier, Better Cooking."

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Westinghouse

ELECTRICAL PARTNER OF AGRICULTURE

tion of the pot to the other.

"If it's got a long spout, brush that well," she warned me. "Of course the part of the coffee maker that has the electric connection has to stay out of the water, but all the rest can go in a dish pan of clean water. And don't spare the soap."

After the washing, she rinses it thoroughly and leaves it open on the shelf.

"If you put your coffee maker together and shut it up tidy like, it will look lots nicer in your pantry, but you'll never be able to get away from a faint musty odor that will drown out the flavor of the best coffee."

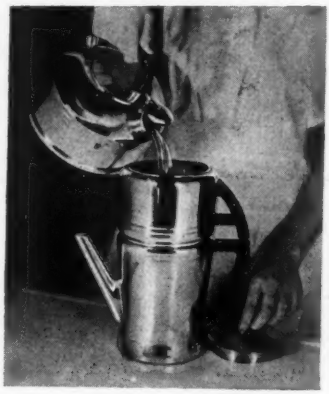
Brown Stain Makes Stale Coffee

Nora's coffee pot never has a chance to get brown and discolored, but when she is visiting her daughter-in-law, she sometimes finds a brownish tinge inside the pot. She gets it off in a hurry with a little steel wool, for she knows that a deposit like that will make fresh coffee taste stale.

This daughter-in-law uses paper filters she throws away after she uses them, but Nora herself keeps the cloth filter she uses fresh for some time by running water through it until the water is no longer brown, then leaving it in a jar of cold water until the next meal. She says she knows folks who put a cover on the jar and set it into the refrigerator as an extra precaution.

That brought her down to the actual brewing and what she had told Dan.

"Everybody has her own idea about the amount of coffee to use," she said. "Some like a tablespoon



to a cup, and some like two, and some like three. You can make a drink to please someone with any of these, but our folks think more coffee is spoiled by using too little than too much. We like a cup of coffee that has some body to it, and that tastes like coffee even after you pour the cream in. That's why I use three level tablespoons of coffee to each measuring cup of water, and I measure it out each time. No guessing.

"I'm not saying three's the only way to get good coffee. What I say is, let any woman try it for herself; but once she finds out what proportions do make a cup of coffee the family likes, let her stick to it, and they'll swear *she* makes the best coffee in the world."

Nora has used many kinds of coffee makers, she says, and she has found that she can make good coffee in any of them if she will use it as it was designed to be used.

"But however you make it, be sure not to let your coffee boil, if you care about flavor," she went on, as I turned to look for my purse and gloves, getting ready to go.

That is easier to manage these days than it used to be. Some of the new coffee makers have controls that will keep the temperature of the water under boiling while you brew the coffee, then, either automatically, or at the flip of a switch, will turn down the current to keep the coffee just hot enough for drinking.

"That doesn't mean they encourage dawdlers, though," said Nora, as we walked toward the door. "It's just that they're fine for seconds. I make my coffee so I can serve it the minute it is done.

"Fresh and steaming!"

How to Make Good Coffee

Brewing Committee
National Coffee Association

Drip Method:

Use 1 heaping tablespoon of

JULY CONTEST LETTERS

Get That Fly *(Winner)*

"The most unusual use for electricity that I ever have seen was not a spectacular performance, but a quiet effective relief from our most common pest, the fly. This electric fly trap consisted of one transformer and a grid of insulated electric wires, rather than the ordinary mesh placed over a window, and when the flies came to rest upon it, they were immediately electrocuted.

"As a farmer's wife I know the hours each year that I spend swatting and spraying flies, and the imperfect result of this labor seems still more flies. For an infinitesimal amount of electricity, this electric fly trap that I saw in operation silently destroyed flies as quickly as they were breeding, and decreased the spread of diseases through fly contamination, banishing from the housewife's mind, the nagging need to 'get that fly.'"

MRS. ROBERT C. STILES,
Quimby, Iowa.

Spray 'Em and Bag 'Em

"I hated spraying flies, but on a farm we have plenty in the barn and the house. To get rid of them, I hook up my cleaner with the hose on the blower end and fill the can with fly spray.

"This power spray is much finer and faster than I can possibly get with a hand sprayer. I let them die and then I move the hose to the vacuum end of the tank and take them all up in the bag. I can empty the bag and the flies are gone. This is getting rid of them in less than half the time it used to take me with my hand sprayer."

MRS. OSCAR F. WILBER,
R.F.D. 1, Olean, N. Y.

Hubby Vacuumed Them

Each summer when I leave my husband to go away on a vacation, I know what a mess things are going to be in when I return.

He stacks all the dirty dishes, forgets to sweep the floor, and invariably leaves the screen door ajar while talking with a neighbor.

Last summer when I returned not one fly was in the house. I asked how he kept them out, and he replied, "I didn't keep them out. They got in all right, but when you wrote you were coming home, I took the vacuum cleaner, removed the brush, and caught all the flies. Then I removed the bag, found the flies half dead and burned them."

MRS. GEORGE G. HUDDLESTON,
Troutville, Virginia.

coffee for each ¾ measuring cup of water. Scald the pot with boiling water. Measure coffee into coffee compartment. Pour fresh, briskly boiling water slowly into water container. Cover and place on an asbestos mat over low heat where coffee will keep hot, but not boil. When dripping is completed, remove upper compartment containing grounds. Stir the brew before serving.

Percolator Method:

Use 1 heaping tablespoon of coffee for each ¾ cup of water—either cold or hot. Measure water into percolator. Place basket in pot and measure coffee into it. Cover and place on heat. When water begins to percolate, reduce heat and allow to percolate slowly over the coffee for 7 to 10 minutes. Remove basket containing grounds as soon as coffee has percolated a sufficient length of time.

Vacuum Method:

Use 1 heaping tablespoon of coffee for each ¾ cup of water. Measure cold or freshly boiled water into lower bowl. Place on heat. Do not place upper bowl in position until water boils. Adjust filter and measure coffee. Place the upper bowl on lower bowl, giving it a slight twist to make an air tight seal between the two bowls. When all but a small amount of water below the tube has risen, stir the mixture well in the upper bowl. Remove from heat. When the brew has returned to lower bowl, remove upper bowl.

Coffee Pot:

Use 1 heaping tablespoon of coffee for each ¾ cup of water. Measure coffee into pot. Bring freshly drawn water to a boil; pour over the coffee, stir well. Cover tightly and let stand on an asbestos mat over low heat 8 to 10 minutes. Strain coffee immediately into hot serving pot.

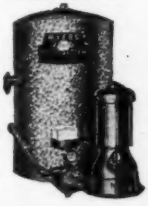
Dinner in the Oven

Not long ago I visited a friend who had an electric stove. We sat and visited all morning until, to my horror, I saw the men folk driving in for dinner. My friend just laughed and while they were unhitching she hurriedly set the table. Still no sign of food in the kitchen but when the men started to wash up she opened the oven door and there was a whole delicious meal all ready to dish up. By the time the men were ready, dinner was ready, too. Yet her kitchen was as clean and cool as a bachelor maid's apartment. It was then that I learned how this friend could come to the community club and sit so relaxed until the last minute while the rest of us had to hurry away so as to fire up in time for supper. She had an automatic oven to do her work while she enjoyed herself.

Now I'll never be happy until I, too, have a shining white electric stove in my kitchen. Think of it! Three HOT meals a day with never a thought of summer heat. No guess work in baking, a deep well cooker for economy, and any degree of heat I wish by the turn of a switch. No more uneven fire because the wood is a trifle green or damp. No waiting for a stove to get hot before I can start to cook. No ashes to carry out and strew the floor. No sooty flues to clean, no stove polish under my nails. No smelly oil stoves to nurse along through the summer months. Instead, a magic switch ready to work wonders at any time of the day. Good things to eat prepared in half the time with little or

Think of the HOURS You SAVE with an AUTOMATIC MYERS WATER SYSTEM

Ask yourself right now: Especially when there's a farm labor shortage, *is it good business* to spend hours pumping and lugging water when you can so easily have dependable automatic water service? Is it good business to wait months or years longer for something that is now so essential to your farm and your family?



Before another week goes by, visit your nearest Myers dealer and see the wide range of Myers Systems he offers you—reciprocating and Ejecto types, styles and sizes for every need—every model engineered and built to give you famous Myers quality and dependability. Clip and mail the coupon NOW!

Whether you choose a Myers Ejecto or reciprocating type water system, you'll get proved performance and complete satisfaction.

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Send free Water System Book and name of your nearest dealer.

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SAVE LABOR
SAVE MONEY

Let Century Type RS Motors Work for You...

More and more, progressive farmers who have taken advantage of rural electrification are selecting Century Type RS, Repulsion Start Induction, Brush Lifting Single Phase Motors, to do their heavy work. Jobs such as water pumping, grinding, shredding, elevating silage, conveying feed and many others can be done faster, easier, and at less cost with this ideal motor for farm use.

Century Type RS Motors have high starting torque (turning effort) to start tough loads; they use less starting current; they hold down light flicker.

To be sure of a motor that will do any farm job within its rated capacity, specify Century Type RS Motors on the equipment you buy. See your own equipment dealer or write direct for full information.

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One of the Largest Exclusive Motor and Generator Manufacturers in the World

no fuss or bother would give me leisure to do all the things I have wanted to do. So I have dropped a wish into the wishing well, "Please give me an electric range." In anticipation I am planting a screen of morning glories around the woodpile, and oiling up the old typewriter. Sheep shearers, silo fillers and harvesters will hold no more worries for me if that wish is granted.

MRS. FRANK L. HALL,
Crawford, Nebraska.

Heat on Call

My neighbors have long been enthusiastic about their electric heating pad. They've used it to temper the pain of childish toothaches; they've used it to bring comfort to Grandma's rheumatic old bones. The girls find it a convenient substitute for a hot iron wrapped in a piece of old woolen blanket when they come home from a dance and shiver at the thought of cold sheets and a stinging fall wind swirling through open windows. The pad heats up the bed quickly, so they can jump in and, stretching their feet down to its welcome warmth, relax and go to sleep at once, instead of lying tense and rigid while the heat of their own bodies warms the bed.

The boys are apt to scoff at it, but it is noticed that they aren't above skulking up stairs with it when they come in some very cold night with their feet like chunks of ice and the fire banked in the furnace. It's a warm bedfellow.

But it has never been on twenty-four hour duty until this spring. During an attack of lumbago, Mrs. Barton kept that heating pad tucked up against her for four days and four nights. She says it made having lumbago just bearable, that's all.

Every family has its own needs

◀ This heating pad may look like Siamese twins but it is really triplets. You can zip it down the middle and it is a large square pad such as we are used to seeing. You can zip it together across the ends, and it is a long narrow pad that will stretch the length of an arm or along a leg. Open in the middle, as it is in the picture, it is easy to use around the back of your neck or across your shoulders. A thermostat keeps the heat in the pad steady on any of its three speeds.

October Contest

Does step saving sound middle aged and stodgy? It doesn't seem to me that it should. It is not hard to imagine the youngest bride being eager to save steps in the morning to spend them walking in the woods or along a little brook in the afternoon. It does not make any difference what you want to save them for—time, strength, or the dance on Hallowe'en—saving steps is good, sound household practice. The contest letter this month is to be about Step Savers in the Kitchen. If you will tell us about yours, you stand a chance to win the five dollars we pay for the most interesting and helpful letter.

The contest closes October 31, 1941.

Send your letter to Gail Meredith, 700 S. Mills Street, Madison, Wisconsin.

for a little extra warmth here and there, a little sudden heat to be conjured up in a hurry. Supplying it in varying degrees of warm, hot, and hotter is the sole job of a good heating pad.

Sunny Mondays

I can well remember the Mondays that carried out the color tradition of long standing . . . they were as blue as the indigo powder from which I made my bluing! But those days are gone. For now—with electricity to make the day as sunny as possible, I don't mind washday . . . in fact I actually look forward to it!

There is something about immersing clothes in foamy suds . . .

clothes that are soiled and dull in color, and seeing them come out either dazzlingly white or—in the case of colored clothes—clear in hue, that appeals to every downright housekeeper. And nothing is more gratifying to her eye than to see her clothes-lines filled with sweet-smelling family garments that she has cleansed with her own hands.

But it is a different story if accomplishing all this has taken most of the day, has tired her to such weary irritableness that she is cross with her children, unattentive to her husbands's crop problems. And that's the way I used to be until the high line very recently brought electricity down the road to our farm.

Now I go singing down the cellar stairs on Monday mornings and set my washer to work on the first tubful of clothes before I even start breakfast. My big washings are done in an unbelievably short time and because I have an electric mangle, part of my ironing is also done on many Mondays!

Because I sit down to iron, it isn't the least bit tiring. Like my mother and grandmother before me—I think "clothes always iron better" if taken from the line at just the right time so I help my ironing by watching the drying.

Our cellar used to be "just a cellar" but as soon as I acquired

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Gives You *ALL* these advantages

Dial YOUR FAVORITE RECIPE
Only Mixmaster has the exclusive, new MIX-FINDER Dial on which the ten every-day mixing needs are plainly indicated. You have the perfect mixing speeds at your finger-tips—instantly! You simply DIAL THE RECIPE. And you know the results will have that "success secret" of delicious food—even, scientific mixing.

YOU, too, can have cakes that amaze you—higher, lighter, velvety grained. You, too, can have whipped cream that stands up twice as long . . . smooth-as-silk mashed potatoes . . . popovers 60% higher than before. And lots more juice from the same oranges, too.

Only Sunbeam Mixmaster gives you *all* these marvelous features:—The Mix-Finder Dial that enables you to "tune-in" the correct mixing speed, instantly. A wide range of *even* mixing speeds that don't vary even when the batter thins-out or thickens-up. The POWERFUL mixer with big, easy-to-clean Full-Mix beaters.

Just think of it, there are over two million enthusiastic Mixmaster users. That's because Mixmaster does the tiring arm-work of cooking, baking, getting meals. There's only ONE Mixmaster. On sale wherever good electric appliances are sold. Be sure yours is a *genuine* Mixmaster.

Made and guaranteed by CHICAGO FLEXIBLE SHAFT COMPANY, 5600 Roosevelt Rd., Dept. 30 Chicago. Canada Factory, 321 Weston Rd. So., Toronto. 52 Years Making Quality Products.
Famous for Sunbeam TOASTER, IRONMASTER, COFFEEMASTER, WAFFLEBAKER, SHAVEMASTER, etc.

my shiny white washing machine and ironer, even a smart looking little chair to sit in at that helpmate, I decided the locale of such "fixings" should be improved. And so we covered the floor of the "laundry" with linoleum, painted an old rocking-chair white to match the utilitarian oddments, and I even made curtains for the windows, from a very full old green skirt that I had long since discarded. My husband grinned indulgently when I came home from town one day with a second-hand Venetian blind. But I didn't care; it helps to cut the glare when I stand at the tubs rinsing pieces. And it certainly adds style to my modern, streamlined laundry!

On dark dull days, the grand big electric reflector type light conveniently placed, turns my laundry into a daylighted spot, for I use daylight bulbs. When I bring the hose off the line—and there are plenty of them when I count the youngsters' many socks, my husband's heavy work socks (and best ones)—I sit in the little old rocking chair, switch on a discarded but repainted bridge light and mend to my heart's content—right here in my little sanitary sanctorum . . .

So you can easily see why I have changed the age-old appellation of "Blue Monday" into that much more modern and appropriate one—SUNNY MONDAY!

Light on Lighting

(*Here from page 6*)

nish, makes a reflecting bowl out of the lower half of the bulb. Used bowl down in a room with a light-colored ceiling, the silvered bulb provides indirect lighting all by itself.

Three-way bulbs offer you three different amounts of light from the same bulb. These bulbs have two filaments in them, each of a different wattage. When one filament is lighted you get light of one wattage; when the other filament is lighted by itself you get light of another wattage; when both are turned on together you get a third brightness. These bulbs come either in 50-100-150 wattage, or in 100-200-300 wattage. They require a special socket, larger than the usual electric light outlet, and they cost more money than ordinary bulbs.

Bulbs or shades which color light are all right if you're using them for ornamental purposes. But if you don't want the special effect they give, use regular bulbs and shades. The colored varieties give less light for the same number of watts and give unnatural colors and effects to the room and its furnishings.

Blue daylight bulbs which cost more money than the ordinary kind and which must be used in larger sizes to get the same light have one advantage, they give a light resembling daylight. For that reason they are used where matching colors accurately is important.

Dust on electric light bulbs, shades, or diffusing bowls cuts down on the light without cutting down on the cost of electricity. By keeping bulbs, bowls, and shades clean, you increase the light and save on the bill.

Note. This article is reprinted by courtesy of the U.S.D.A. *Consumer's Guide.*

Ed Mitchell, genial farmer, and farm question and answer man for General Electric's Station WGY, gives this as his pet rat trap. "Get a 50-gallon barrel and put four inches of water and a brick in it. Cover the top with heavy paper and cut a large X across the paper. Hang a bait over the cross. The first rat falls in and sits on the brick. As soon as two rats are in the barrel, they fight for a place on the brick. The bait and fight attract more rats, who come to see what it is all about. And they, too, join the fracas. The result: All the rats are caught.

There's a Reason why

DELCO WATER SYSTEMS

Pay for themselves so Quickly

A water system pays for itself by saving time and hand labor, increasing milk and egg production, helping fatten stock, etc. It stands to reason that the better the water system is built, and the more economical it is to run, the sooner it will pay for itself.

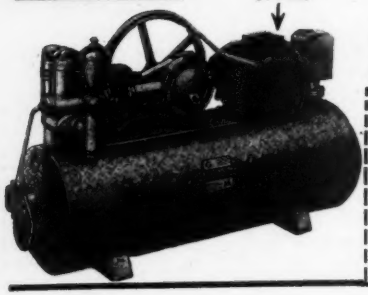
Delco and General Motors designed Delco Deep and Shallow Well Pumps especially for farm use and saw to it they were not only economical to buy and operate but so well and strongly built they would stand up to their jobs for years.

They also provided capacities of from 180 to 1600 gallons per hour, so each farm could have the most economical size for its particular needs.

DELCO-JET SYSTEM

←DEEP WELL SYSTEM

SHALLOW WELL SYSTEM



Delco Dealers have for years been studying the water supply and recommending the most economical kind and size water system to use. Your Delco Dealer will be glad to advise with you without obligation.

DELCO WATER SYSTEMS

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Please send, without obligation, full information on Delco Water Systems

Name .....

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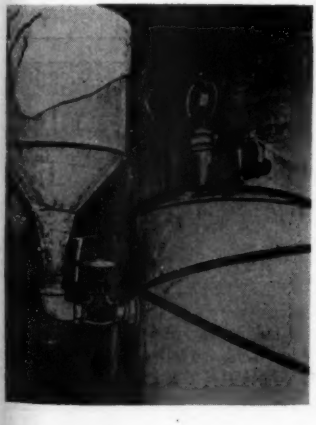
Improvised Stationary Spray Plant for Family Orchard

DR. E. O. FIPPIN of Fountain City, Tennessee, has built up a 25 gallon stationary spray outfit at small cost, which he says is convenient and insures the spraying of his fifteen fruit trees.

The spray equipment consists of a 30 gallon range boiler (hot water tank), to the two top threaded outlets of which have been attached a pressure relief valve and a small pressure guage. The pressure guage is at the top of a 1" x 6" nipple, which is unscrewed as a vent when filling the tank with water and spray chemicals. The other pipe opening on top of the tank is fitted with a pressure relief valve. Air from the compressor is forced in through the opening in the bottom of the tank. This serves to agitate the solution while keeping up the tank pressure.



A check valve is placed in the air line so that spray solution cannot get back into the compressor.

A large funnel with a strainer cloth over the top is connected to the upper opening into the tank through a ¾" gate valve. Water is first run into the tank through this funnel, and the spray chemicals in solution are then added and the compressor started.

The compressor was rescued from an old refrigerator unit. A paint sprayer compressor would also do, if it is rugged. The pressure maintained in the tank is from 100 to 110 pounds. The motor on the water system is used to run the compressor. One-half horsepower or larger would be needed.

Cash Cost Items of Stationary Spray Outfit

100 feet used ¾" pipe and 10 feet 1¼" pipe	$6.50
Pressure and blow off gages —3 pipe hose couplings	7.00
Cut-offs—nipples and plugs	3.60
Used refrigerator compressor	5.00
Plumbing labor and some materials	8.00
50 ft. 250 lb. pressure hose, 15 feet spray rod Y and 2 spray nozzles	16.00
Funnel for filling	1.50
Total	$47.60

One hundred feet of ¾" pipe with

"A SINGER PAYS!"

"When I asked my sewing teacher what kind of electric sewing machine mother should get, she said, 'I recommend a Singer. It stands up under hard use, and has time-saving features that you get with no other machine. We find a Singer pays!'"

Available in the U. S. A. only.

This handsome modern desk electric has *four* big drawers... and is equipped with all the latest electric sewing features. See the new Singer electric portable, console, and desk models at your Singer Shop. Or, drop us a card for a demonstration in your home. Liberal trade-in allowance on old machines.

SINGER *"1800 Singer Shops and Authorized Distributors"* SEWING MACHINE CO., 149 Broadway, N. Y.

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At last! A portable heater that uses slow heating, automatically controlled... plus heavy insulation... to give you plenty of hot water, 24 hours a day, at much less cost than you ever dreamed possible! No pressure needed; no expensive installation; just plug it in! Nothing in years has made such a tremendous hit with dairy farmers all over America! NOW they can maintain cleanliness always...at the least possible cost! Heavy insulation keeps the water hot for many hours and, by automatic control, current is used only when needed, That saves you DOLLARS! MAKE US PROVE IT!

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Please mail full particulars about the Dairy-Maid Heater, your Easy Terms, and your Free Demonstration Offer.

Name_____

Town_____

R.F.D._____ State_____

two outlets carries the spray liquid within hose distance of all the trees. Regular spray hose and spray guns are used.

Dr. Fippin has used this outfit successfully for several years and is pleased with the results of his spraying. He has good fruit instead of diseased trees and scabby fruit full of worm holes. He uses it also on shade trees.

Next Spring's Hotbeds

Hotbeds for growing spring plants are usually started during late winter or early spring when the ground is still frozen or very wet. It is best not to use the same ground for growing plants year after year unless it is sterilized with heat or chemicals. If soil in the hotbed is to be replaced, it is much easier to do it this fall while the soil is in good workable condition and when humus, limestone and superphosphate can be worked into the soil and have time to "mellow" before being planted.

Small Hammer Mill

(*Here from page* 14)

is plenty of juice in the line. It never runs out like fuel oil does. Unground feed flows into the grinder through a spout from an overhead bin. As soon as the gate is properly adjusted so as not to overload the motor, Mr. Hale goes about his other work. Now and then he steps into the grinder room to make sure everything is in order.

By manipulating the spouts from the three overhead bins the feed is ground, mixed and stored in one of the bins ready for delivery down through the spout and into a feed cart. Last spring when there was not much pasture the feed for 26 producing cows for 10 days was ground and mixed in one and one-half hours.

Shop Tools

THE electric drill in the work shop on the Arthur Horton farm, Porter county, Indiana, is about the most useful tool of all, says Earl Hanrahan, farm manager, for this drill can be carried outside for a distance of about 150 feet to do jobs on hay racks and other things. This is done by using a long service cord. Picture here shows the drill being

used in the shop, while hanging by is the extension cord for outside use. In the same electrical farm work shop there is a grinding outfit for sharpening the farm tools. Milk is cooled electrically in the milk house, and when the weather becomes so cold as to make the milk house temperature uncomfortable, a small electric heater is turned on to temper the air.

GEO. R. HARRISON

Monarch
ELECTRIC
and
COAL-WOOD
COMBINATION RANGES
Today's most popular "high line" range. Built to provide year 'round convenience and comfort in the farm kitchen.
See your "Monarch" retail outlet or—
Write for booklet illustrating complete line.
MALLEABLE IRON RANGE CO.
1241 Lake Street
Beaver Dam, Wis.

By JEROME J. HENRY

It's Nice to Have Traveled

Hugh James, who introduces Lowell Thomas, the noted newscaster, is glad he honeymooned in Denver.

James was later assigned to a broadcast from the Professional Golfers Association match in Denver. The broadcast was to start at 11:05 with a piano fill-in for the first five minutes after the hour. The standby pianist didn't show up, and Hugh was forced to ad-lib a description of the scene of the tournament. He did it well.

But he had to admit, when everyone began congratulating him for the swell job that he had done in an emergency, that he was describing the scene from observations made during his recent honeymoon. He couldn't see the tournament field from the studio he was in!

Kent's Learning Languages

Richard Kent, the "Travelling Chef," likes curried rice. In fact, it was once his favorite dish; but he isn't eating it these days. A fit of cold shivers attacks him each time he sees a plate of his favorite food.

On a trip through India recently, Kent dropped in at a little restaurant in one of the native quarters of Calcutta. He called for curried rice, found it so delightful that he asked to speak to the cook. The cook came out, and Kent asked him for the recipe. Immediately the cook drew out a large carving knife from his belt, and chased Kent up a winding street. Kent later learned that "recipe" in an Indian dialect means: "You don't know how to cook."

Out of the Mouths of Babies

Four thousand engineers of the largest electrical company in the world would be happier if a little girl in The Bronx, New York City, had not asked them a question. Two years ago the little girl wrote the General Electric Company "for a little sample of electricity, if you can spare it."

They met that crisis. They wrote the little girl and said they would be happy to "spare it"—that is, just as soon as they found out what it would be. They are still figuring.

Then another little girl listened to a radio program and decided that she, too, would write a letter; so recently her letter arrived at the GE laboratories. She wanted "a couple or all eight diagrams of electricity."

The four thousand engineers are again tearing their hair. For they

Beguiling is the word for Kathleen Wilson, who is known to millions of radio fans as Claudia in "One Man's Family," the popular Sunday night serial.

GOULDS JET-O-MATIC

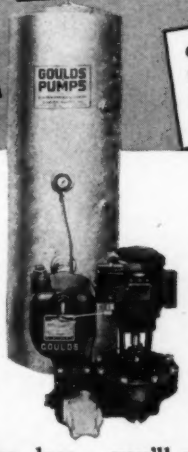
COMPLETE SYSTEM Comes fully assembled, nothing else to buy.

THE BEST WATER SYSTEM 'BUY' OBTAINABLE ANYWHERE

CHEAPER TO OWN No leathers, discs, springs, etc., to replace—ever.

FULLY AUTOMATIC No priming, oiling, or air charging needed.

CHEAPER TO INSTALL Put it anywhere, regardless of well location.



THE best type of shallow well system made. All the advantages of the newly perfected jet principle of operation—simpler—quieter—full 28-foot suction lift—no quick-wearing close fits—takes less space. Modern production facilities enable sale through your local dealer at a price that brings this sensational up-to-the-minute type of water system within reach of everyone. See it yourself; you'll quickly appreciate its superiority.

GOULDS

RUNNING WATER

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340 Fall Street, Seneca Falls, N. Y.
Please send me the name of the nearest Goulds Distributor. And full information about the new Goulds JET-O-MATIC Water System.

Name .....

Address ..... State .....

664

Apparently enjoying "Mr. Ace's" latest perplexity are (left to right) Jane Ace, Marge Hunter and Ann Thomas, who comprise the delightful cast of the popular Easy Aces program. They are seated at the same bridge table with its set-in microphone, with which the Aces launched the series nearly ten years ago.

say, "If we can't find a sample of electricity, how can we make a diagram of it, much less a couple or eight diagrams."

Recipe to Conquer Fear

Ruth van Deman, a specialist in the Bureau of Home Economics, and a frequent broadcaster on the National Farm and Home Hour, is never nervous in front of a microphone.

She pretends that she is paying a visit to a friend's home to talk over one household thing or another when it is her turn to speak into the "mike" which has cowed many a strong man. "It's just as if I were dropping in to pass along the latest on oven-control for roast turkey—or maybe a new tip on dressing up the old familiar hamburger into a company dish—or to tell her what's wrong when the custards curdle and the meringues fall—or what to look for on a label if she wants her money's worth—or how to take the cod-liver oil stains out of Junior's rompers," she says.

Miss van Deman was born on a Kansas farm and her father was the first pomologist to be employed by the U. S. Department of Agriculture. She went to school in the nation's capital, graduated from Smith College, later took post-graduate work in home economics at Columbia University. She has lived in many different parts of the United States, ranging from Virginia to the Pacific Coast, and has travelled extensively in Europe.

Wherever she goes her chief interest is in how people farm, what they raise, what they eat, how they cook, the clothes they wear, and the houses they live in.

War Cuts "Organ" Supply

The European conflict threatens to cut off an important American import—at least an import that's important to the "mouth organ" addicts.

The best concert harmonicas are still made in central Europe, and the current supply is limited.

But Bob Ballantine of the National Barn Dance troupe doesn't mind, because he has on hand 200 harmonicas ranging in size from tiny ones that can be swallowed to one 18 inches in length. Bob says it's impossible to estimate the average life of a harmonica. Some last several months, and some last for just two or three performances. Once they go bad, their original tone quality can never be restored.

Bob joined a harmonica band when he was 10 years old. After high school, he went on the stage in his own act, and later appeared with Chautauqua companies, in vaudeville, in night clubs, and with several name bands, including Horace Heidt's, before he joined the hayloft gang.

But if the supply of harmonicas should diminish and disappear, Bob won't be too worried. He is also an expert on the guitar.

Three almost identical reasons for the continuing popularity of the "Barn Dance" are the Dinning Sisters.

NEW, COOLER
Easy Running
COW CLIPPER

World-Famous
STEWART CLIPMASTER

Over 90% of the world's clipper users own and PREFER STEWART clippers. New anti-friction tension control assures perfect tension between blades for cooler, lighter running—faster, easier clipping. Makes blades stay sharp longer. **The most powerful clipper of its kind ever made.** Lasts longer. Fan-cooled, ball-bearing motor exclusive Stewart design. Completely insulated in the special **EASY-GRIP** handle barely 2 inches in diameter. The finest, most enduring clipper ever made for cows, horses, dogs, mules, etc. *A $25.00 value for only $19.95* complete. Slightly higher West of Denver. 100-120 volts. Special voltages slightly higher. At your dealer's or send $1.00. Pay balance on arrival. Send for FREE catalog of Stewart electric and hand-power Clipping and Shearing machines. Made and guaranteed by Chicago Flexible Shaft Company, Dept. 30, 5600 Roosevelt Road, Chicago, Illinois.
52 years making Quality products.

Questions and Answers

Scuffle Hoe

▶**Question:** *Where can we get one of the New Hoes described in your July issue?*—From a Lot of Readers.

▶**Answer:** That scuffle hoe is an elusive "critter." We have written a dozen large manufacturers of hoes in this country, and so far have not found one who makes a hoe of this type. They are imported from England and may be secured from Alfred Field & Co., Inc., 93 Chambers St., New York City.

Mixer Operated Churn

▶**Question:** *In your August* 1941 *issue of Electricity on the Farm you have a churn pictured that is operated electrically by a Sunbeam Mixmaster. I have a mixer and a Dazey churn. How can these be hooked up to churn my butter as pictured in your magazine.* E. C., Ohio

▶**Answer:** The churn attachment for the Sunbeam Mix-Master is made especially to fit that mixer. We have asked the company to send you information about it. It might be possible for a local machine shop to make a connection so you could use your mixer with your Dazey churn but it would probably be as cheap to buy the churn made especially to use with your mixer.

Motor in Dusty Atmosphere

▶**Question:** *We are building a double corn crib with five graneries above the cribs and driveway. The building is to be fifty feet long and thirty-two feet wide.*

We are very anxious to put our hammer mill in the building, but we have heard that it is not practical because of the presence of dust. We would appreciate any information about this that you may know. Thank you very much. J. S., Ill.

▶**Answer:** There is some danger of explosion from using electric motors in dusty atmospheres of grain rooms, but thousands of them are being used in mills and feed rooms for the purpose of grinding feed. You can get motors which are quite dustproof and the motor can be cleaned out occasionally with a vacuum cleaner or blower. All feed grinding operations are dusty.

Cosmo Electroculture

▶**Question:** *I should like to have some information on the "cosmo electroculture" on which experiments have been conducted in this country. How was the apparatus prepared?* A. F. A., N. Y.

▶**Answer:** I have heard of a good many kinds of electroculture and have done some experimenting with some of them but "cosmo electroculture" is a new one to me.

A number of years ago we experimented with the Christofleau apparatus and some variations of it in this country. It consisted of a collector head similar to a multi-pointed lightning rod connected to wires laid in the soil. It was supposed to collect electricity from the air and discharge it into the soil. While some people thought they observed beneficial results they were so questionable that the process has not endured to my knowledge.

The British Ministry of Agriculture has conducted electroculture experiments for many years and have issued great volumes of reports on the subject. Our own Department of Agriculture has checked up on

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Only $39.95 and old cleaner

Without Old Cleaner $49.95

Premier's newest, cylinder-type cleaner—the full-sized and full-powered Aire-Matic "90"—cleans the *high* places as well as the *low* ones. With plenty of power for cleaning rugs and carpets, the Aire-Matic is equally efficient cleaning upholstered furniture, walls, moldings and hard-to-reach places with no extra effort on your part! Equipped with 7 simple attachments, it's an all-round cleaner for all around the house.

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A PREMIER FOR EVERY PURSE—EVERY PURPOSE!

Premier manufactures all types of vacuum cleaners in all price ranges. There's a Premier cleaner or combination of cleaners that will meet your cleaning needs and your budget requirements as well!

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Please send me complete information and literature on: ☐ The Premier Aire-Matic "90"; ☐ other Premier cleaners. Also send me names of nearest Premier dealers.

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Modern design and engineering increase pumping efficiency and dependability in new F & W centrifugal system shown here. Embodies improvements based on 75 years' experience.

PLENTY OF RUNNING WATER
yours to enjoy at small cost when you install a dependable F & W system. Small units, large capacity. Sizes and types to meet needs of all suburban and rural homes, for deep and shallow wells.

FREE BOOK helps you select equipment suited to your needs. Write now for your copy, no obligation.

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75th Anniversary Year

buyers' INFORMATION service

As a reader of this magazine you are entitled to our buyers' information service free of cost. When looking for information about equipment or material that you plan to buy, first read carefully the advertisements in this issue. Then, if you do not find what you want, just use the coupon below to tell us what you need and we will see that you get the information you want

USE THIS READER SERVICE COUPON

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Readers' Service Dept., 24 W. 40th St., N. Y.

Without cost to me, please have manufacturers send complete information on the following Electrically Operated Equipment which I am thinking of buying:

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Address.....

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I get electricity from.....

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this work which included direct and alternating current discharges of various intensities and voltages and has found no result worth promoting.

There have also been several machines devised and much commotion aroused over the beneficial effects of discharging high frequency, high voltage current into the soil. I personally made many tests of this equipment as did a number of the agricultural experiment stations, and none of us could report any consistent results. A private farming company in California is still experimenting with apparatus of this kind.

I do not say it cannot be done. Some day we may find the way and accomplish wonders through electric stimulation of plant growth. At present, I do not know of anyone who knows how.

Electric Oats Sprouter

▶**Question:** *Where can we buy an electric oats sprouter?*—H. H., Neb.

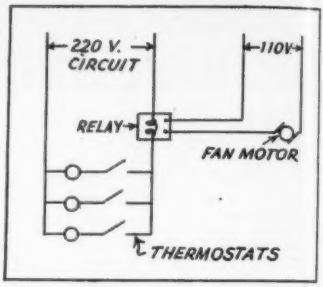
▶**Answer:** So far as we know they are no longer manufactured. Perforated pans 11x32 inches with legs are obtainable at 50c per pan from the W. H. Collins Company, 419 Broome Street, New York City. If you would make a cabinet holding six of these trays one above the other, the cabinet having tight side and back walls and a curtain in front, a 25-watt lamp placed under the bottom tray would probably provide all the heat necessary to sprout the oats in a reasonably well protected building.

Automatic Control for Refrigerator Fan

▶**Question:** *I have three commercial refrigerator units side by side, each powered by a 220 volt motor controlled by a thermostat switch in refrigerator. Would like to install a ventilating fan which will automatically turn on when any one of three units starts running and off when none is running. Can you send me a wiring diagram to hook up the fan. This fan has a 110 volt motor but can get 220 if necessary.*
E.W.P., Ind.

▶**Answer:** The sketch herewith is my suggestion for controlling your 110 volt fan motor. You can buy a series relay from the Struthers Dunn Company, 139 N. Juniper St., Philadelphia, Pa., for $6.50 which will close your 110 volt circuit whenever current is flowing to any one or more of your refrigerating units.

If there are any other electrical appliances connected to this 220 volt circuit, then it would be necessary to put one of these relays in the circuit of each refrigeration machine,



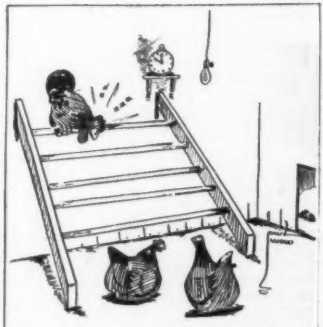
connecting the 110 volt side of the relays in parallel, so that whenever any compressor started, the fan would also start and continue to run until all of the compressors cut off.

In ordering the relay, it will be necessary to give the voltage and maximum and minimum current which will flow through the series coil—that is the current when only one unit is running, and when three units are running—and also the horsepower of your 110 volt fan.

The United States now manufactures 96 percent of its dyes.

Static Shocks

Did you ever get a sharp shock from a water pipe or light switch after rubbing your feet over a dry carpet? It happens mostly in the winter time in furnace heated houses where the humidity is low? Prof. Robin Beach of Brooklyn Polytechnic Institute says the voltage generated may be as much as 10,000 volts. It is harmless because the amperage is so low.



Since the boss put in lights, he's been all mixed up on his crowing.

VOGEL FROST-PROOF HYDRANTS

Deliver Water in the Coldest Weather

Any outdoor water supply can be protected from freezing by installing a Vogel Frost-Proof Hydrant wherever the water is needed. It will deliver water in the coldest weather, and furnish extra fire protection during the winter months.

Inexpensive—simple to install—nothing to get out of order, Vogel Hydrants have been in service for years on dairy and stock farms everywhere.

Your nearest supply house handles Vogel Frost-Proof Hydrants, or write us for complete information.

JOSEPH A. VOGEL COMPANY, Wilmington, Delaware

Hens Demand Comfort For Good Winter Yield

Hens like comfort, and unless they are surrounded by a certain degree of it, they'll slow down on production, Dr. W. C. Thompson, head of the poultry department at the New Jersey College of Agriculture, reminds poultrymen.

But it's not entirely due to stubbornness, Dr. Thompson claims. The reason is that when birds are chilled, they stand around humped up, inactive and do not eat sufficient to maintain the good health high production requires.

"Comfort, from the viewpoint of hens, apparently includes, first of all, four to six inches of clean dry litter to protect them from the coldness and dampness of the usual poultry house floor," he says. "Such litter also helps keep the birds and the eggs they lay clean.

"Secondly, comfort is a matter of complete freedom from floor drafts. Cold breezes blowing across the birds, either when at work or on the perches, tend to create colds and lower resistance. Sunlight should enter the house since the sun's invigorating rays stimulate health and productivity of the fowls.

"Third, hens need room for comfort. Allow at least four square feet of floor space for every layer. Also allow one nest for every five hens.

"Last, but not least, the poultry house itself should be sufficiently well constructed and insulated with inner wall boarding, and heated artificially if necessary to protect the birds from sudden drops in temperature.

"Remember that chickens live down in the first foot of space just above the floor most of the time," Dr. Thompson says, "so the poultrymen should not judge the comfort of the house by the part with which he comes in contact."

Broodiness Is Inherited

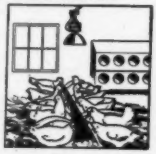
The broodiness tendency in hens, poultry research has proved, is an inherited characteristic. Broody chickens tend to produce broody chickens, and there are relatively few broody hens in strains that for generations have been culled for broodiness. At Beltsville, the average production of non-broody White Leghorns was 194 eggs compared with 153 eggs for broody pullets of the same breed.

Examine Eyes of Pullets At Time They Are Housed

In selecting pullets that are to go into laying houses, it is worthwhile to examine their eyes. Importance of the appearance of the eyes of chickens, especially those that are to be used as breeding stock, has been stressed by several workers during the last few years. The eyes may be classed as normal if the iris is orange and the pupil round, and as abnormal if the iris is brownish-gray or blue and the pupil is not round. Poor production and high mortality usually are more closely associated with an abnormal color of the iris than with an abnormal shape of the pupil. However, mortality is usually greatest when both types of abnormality occur simultaneously. The advisability of keeping pullets that have distinctly abnormal eyes may be seriously questioned. However, if such pullets are kept, it is best not to house them with pullets that have normal eyes. The obvious reason is that abnormal eyes are usually an indication of disease.—Harry W. Titus, U. S. Bureau of Animal Industry, Beltsvills, Md.

Conti-Glo SUNLAMP

Hang an Ultraviolet Conti-Glo Sunlamp in your laying pens; keep your hens supplied with Vitamin D. Cheaper than cod liver oil or substitute. Have healthier, bigger birds, more and better eggs.



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THERMOGRAY
Electric Water Heater
Automatic Economical

PIPING hot water 24 hours per day, helps make your housework easier. Heating water with electricity gives new freedom from fire hazard. Install a Thermogray NOW.

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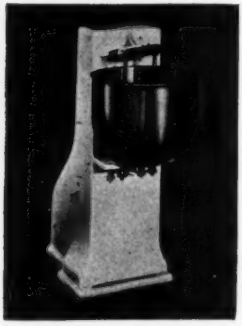
STOP COLD WEATHER INVASION
Increase Your Winter Profits
with the
TRUMBULL WATERWARMER
The BIG GUN FOR MORE WINTER EGGS
Frozen water lowers production of high priced winter eggs. Our electric warmer keeps water drinkable in the most severe weather.
Ask your dealer about CASH contest or write today.

THE TRUMBULL ELECTRIC MFG. CO.
1012 Woodford Ave. Plainville, Conn.

Names and addresses of manufacturers of the articles described in this column will gladly be furnished upon request to What's New Department, ELECTRICITY ON THE FARM, *24 West 40th Street, New York, N. Y.*

¼ H.P. Homogenizer

For the smaller market milk dairies, here is a small homogenizer which makes milk more stable and uniform in texture. The homogeni-



zation process is one of forcing the milk through very small openings under high pressure. Capacity of this machine is 12 to 15 gal. per hr.; motor ¼ hp; height 36 in.; shipping wt. 137 lbs. The milk is placed in the stainless steel bowl. The "walking beam" above the bowl operates two plungers in cylinders attached to the bowl forcing the milk through the two openings shown in the bottom of the bowl under 2500 lbs. pressure. Price $275.

110-125 Volt Sunlamp

The illustration shows a new 275 watt Sunlamp which is used on the

ordinary 110-125 volt alternating current lighting circuit without an auxiliary transformer. It has a built-in reflector like the RS-4 Sunlamp, produces about the same amount of ultra-violet and has the same operating life (about 400 times on and off). Differences: RS-4 lamp with auxiliary uses 125 watts; the new RS lamp, 275 watts; RS-4 lamp lists at $10.00; RS at $15.00 (both less 20% discount). The RS lamp produces some infra-red and visible light, resulting more nearly in white light than the RS-4. For poultry house use this RS lamp is NOT recommended over the S-4 or RS-4 because of its higher operating cost.

Electric Towel Dryer

This dryer which is built into steel kitchen cabinets contains a 350 or 700 watt heater and a small fan above the drying compartment, watt-

age depending on size of dryer. Warmed, moving air dries towels quickly and easily. Racks slide in and out. The dryer may be built into large cabinets or obtained as a separate unit.

New Publications

(*Publications are obtainable from the addresses given in the descriptions.*)

• WATER SYSTEM MANUAL. A 24 p. profusely illustrated manual on shallow-well, ejector type shallow well, deep well and ejector type deep well water systems and how to install them. Free. Fairbanks, Morse & Co., Chicago, Ill.

Practice-Then Preach

(*Here from page* 8)

er has been taking the rap over rough fields. Then there were a welded furnace pot casting, the spiders at the ends of the side delivery rake, welded without removing them, railroad irons, chain links, calf stalls, trailer hitches.

The home has its electric equipment too: Range, water heater, refrigerator, churn, mixer, and running water in bath rooms supplied from cisterns and a separate water system. The house is old, but modernized. The electric ice-cream freezer keeps two trays in the refrigerator full of good, smooth ice-cream.

W. C. insists that he is lazy, even suggests that he would like for the men on the farm to be a bit lazy too. But we think if the idea of doing things conveniently on the farm with electricity is being lazy, then more farmers should practice this type of laziness. Two men filling the silo without even handling the green hay by hand is a good illustration of what W. C. evidently means by profitable laziness.

The average monthly use of electricity at "Happy Hill" exceeds 1,000 kw-hrs. Mr. Gist says they have stopped watching the meter on each piece of equipment. Their long use of electricity and their careful checking on it has convinced them that it is worth the cost,—and double, if necessary.

Cleaning Cisterns

When you clean your cistern you can save a lot of bailing and lifting by placing a tub or large bucket under the suction of the pump and having the water pumped out as you dip the last of it into the tub.

Of all the things you wear, your expression is the most important.

CLASSIFIED ADVERTISING

MODERNIZE ELECTRICALLY! Complete poultry farm supplies: Infra-Red Ray Brooders, Thermostats, 150 items. *Free 52 page Catalog.* Parts & Plans for building your own brooder. Write today! LYON ELECTRIC COMPANY, Dept. EF., Greensboro, N. C., or San Diego California.

VIKING ELECTRIC HAMMER MILLS grind feed fresh daily while you do other chores. No tending—works automatically. Low cost, terms, 30 days trial. Write VIKING MFG. CO., Dept. E., Jackson, Mich.

GET YOUR FREE COPY NOW. Bussey 100-page book for Poultrymen. Low Factory Prices. Parts for electric brooders and batteries; heating assemblies; wire Fabrics; Poultry Department. Save money. BUSSEY PEN PRODUCTS, 5171 West 65th St., Chicago.

POULTRY TIME SWITCHES pay for themselves in increased egg production. Five models from $3.95 to $18. All-electric or manually wound. With or without dimmer circuit. Write for information. AUTOMATIC ELECTRIC MANUFACTURING CO., Mankato, Minnesota.

FUN FOR ALL—the whole family can take part in this contest. CASH PRIZES will be awarded for the best suggestions for a last line to complete the verse at the bottom of this page.

What Would YOU Say?

Rhyme Contest

OCTOBER CONTEST RULES: Seven cash prizes will be awarded for the best last line to complete the verse in the coupon below. Your suggestion should rhyme with the second line.

The first prize will be $20 cash; the second prize, $5.

In addition, five consolation prizes of $3 each will be awarded for the best last line furnished.

In case of a tie, each winning contestant will receive the full cash prize to which he or she is entitled.

All members of the farm family to whom this magazine was sent may enter, but each contestant may submit only one line.

Question "A" must be answered.

Entries should be sent to the Contest Editor, ELECTRICITY ON THE FARM, 6 No. Michigan Avenue, Chicago, Illinois, and must be postmarked before October 30. The decision of the judges is final and all entries become the property of ELECTRICITY ON THE FARM.

Winning names and entries will be announced in the December issue.

Send your entry on the coupon or make out a similar form on a plain sheet of paper or government postcard.

With electric power, you can sew by the hour
You can run it a year for a dime
You can make Father's shirts, Nell's pants and your skirts,

My suggestion for a fourth line to the above verse is:

.....

.....

(a) Do you pump water electrically on your farm?———
Is it piped to—(answer yes or no)
a kitchen sink? ———
an inside water closet? ———
a bathtub or shower? ———
an outdoor hydrant? ———
a stock watering tank? ———
drinking cups for cows?———
poultry house? ———

My name is.....

R.F.D..... Post Office.....

County..... State.....

I get electricity from.....(10-41)

August Contest Awards

for the last line of this verse:

When you're cooking cabbage
And the kitchen starts to smell
It's electric ventilation

.....

FIRST PRIZE—$20 Cash

"That offensive whiffs dispel!"
MRS. CHARLES BORN, R.F.D. No. 2, Janesville, Minnesota

SECOND PRIZE—$5 Cash

"Leaves Odors No Place To Dwell."
MRS. A. O. ANDERSON, R 7, Box 3155, Sacramento, Calif.

Five Consolation Prizes—$3 Each

"That doth aroma quell."
MRS. D. W. PERSSE, R.F.D. 2, Fonda, N. Y.

"Send Odors A.W.O.L."
MRS. R. R. FLETCHER, Box 437, Park City, Utah

"That controls the aroma so well."
HELEN RUSSELL WHITE, R.F.D. No. 1, Lafayette, Tenn.

"That gives those scents 'the bell.'"
MRS. JOHN A. ROTH, R.F.D. 3, Dunlap, Iowa

"That tolls the scent's death knell."
MRS. ETTA M. GUILLIAMS, R.F.D. 4, Crawfordsville, Ind.

HONORABLE MENTION

Mrs. B. G. Perdue, R.F.D. 1, Luverne, Alabama; Mrs. Camilla E. Owen, R.F.D. 1, Ashland, Oregon; Mrs. R. L. Huff, Conyers, Georgia; Jeanette Warner, R.F.D. 1, Remington, Indiana; Mrs. Sumner Parker, R.F.D. 1, Ashland, Oregon; Mrs. M. G. Lorenzen, R.F.D. 1, Rockwell, Iowa.

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With the scarcity of farm help, here's one way to solve your "hired man" problem.

Put *cheap* electricity to work! Use electrical equipment wherever possible. . . . You will gain many more hours in the fields!

ASK YOUR ELECTRIC COMPANY

or your electrical equipment dealer if you need further information. Or, if you prefer, address your inquiries to ELECTRICITY ON THE FARM, 24 West 40th Street, New York, or 6 No. Michigan Avenue, Chicago.

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